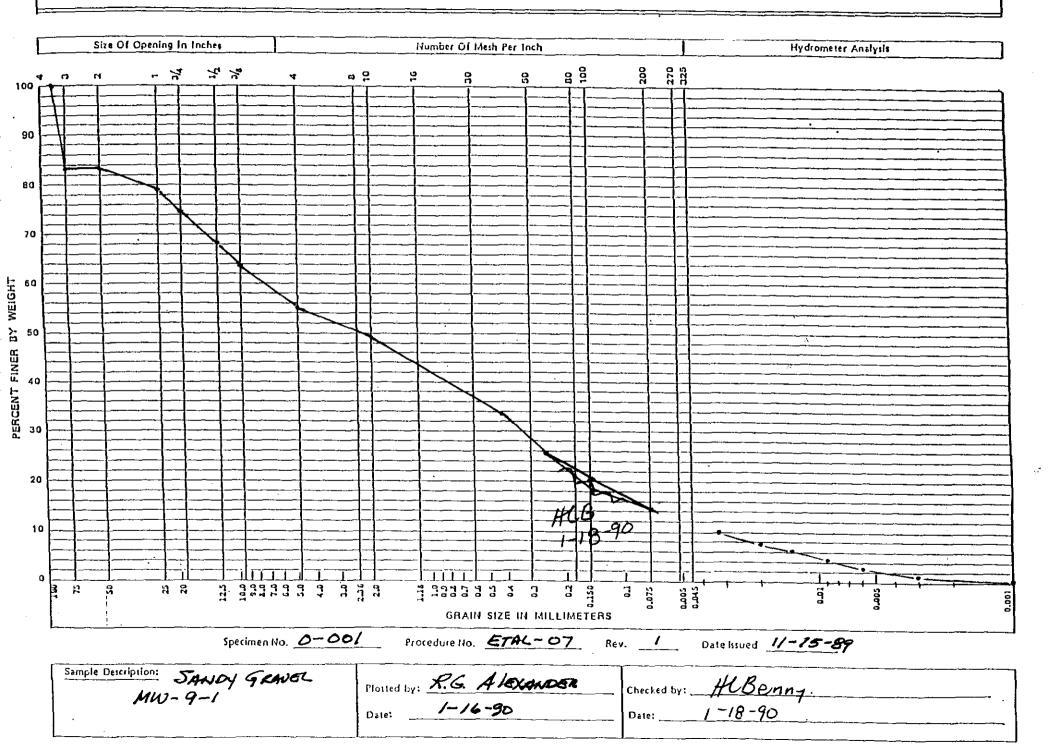
TEST REQUEST FORM

Remarks FIELD SAI MW 9-1	mple.	Received By: RG Alexander Date 1-9-90 Approved By: RG Alexander Date 1-16-90
Hyprometer		Erm-02 (FF RED)
Moisture	<u> </u>	Etal-14
SIBIE ANDWASIS		ETAL-07
Test Requested	No. of Samples	Test Lab Information (Instruction Used)
Requested By: Org	. <u>80232</u>	Person J. Lindberge Date 1-16-89
Sample/Specimen No	. <u>0-001</u>	Cost Code/Work Order No. ED 332



				SIEVE ANAI	LYSIS DAT	A SF	TEET	<u></u>	
	Sampl	e ID_					e	of	
	Te	sted	By 6	P.G. AIBXA	MOSTZ I	Date_	1-16-9	0	
	-			 .					
	Pr	oceai	ıre <u>-</u>	Thur or Re	·∇ <u> </u>	Date :	Issued <u>II.</u>	-15- 89	
		EQU	ГРМЕ	NT ITEM CAI	LIBRATION N	10.	DATE D	UE	
		Balar	ice		3504		3-25	.30	
<u> </u>		Therr	nome		0004 N/A		Z-6-	40	
Samp	le Desc	ripti	on	SANDY GRI	NAEC.	<u> </u>	Sieve Tir	ne <u>10</u> (1	min)
		i by	<u> </u>	splitting [quartering	<u> </u>	□ stockp	ile	
BEF	(B) FORE T	est w	T. <u>N</u>	AFTER TE	(A) ST WT. NIA	B-A	x 100 = _	NA % LOSS	
Sieve ID	Sieve	Sam	ple	Cumulative Wt.	% Retained	Cum	ulative %	Cumulative ?	Z Pass
Number	Size	Weig	ht	Retained (g)		!	etained	Pass	
NIA	3/2	479	6.00	784.40	16.6		6.6	83.4	83.4
	21/2			3				00.	
	1			988.55	20.8	Rep	19.8	79.2	83.4 79.2
	3/4	 		1211.52	25.5	1	s.s	74.5	74.5
	1/2			1510.57	31.8		1.8	48.2	68.2
	3/8			1712.90	34.1		6-1	43.9	43.9
	# 4		· · · · · · · · · · · · · · · · · · ·	2140.84	45.1	1	5.1	54.9	54.9
	#10	4746	6.00		50.6		0.6	49.4	49.4
	#40		.58	46.27	31.8		1.8	68.2	33.7
	160			69.6Z	47,8	1	7.8	52.2	25.8
	#100			85,15	57.5		8.5	41,5	20.5
*	# 200	1		102.78	70.6		0.6	29.4	14.5
	Finess	Module	es (FM	4\N_(1)	(See ASTM C 1				
MATERI	ALS FI	NER 1	THAN	NO. 200 SIE	VE BY WASE	IING			
C=Percen	tage of	Materi	al Pa	ssing a 200 Siev	re <u>274</u> %		Remarl		
D=Origina	al Dry We	eight o	of San	nple	14 <u>5.63 g</u>	ĺ		FINE GRAD	
E=Dry We	_	_		r Washing/Sleve	102.78 g	ļ			
		(D-E),							
5				URATELY ANI AINED AND U					3T
	recked		4	_				1-18-90	_
<u> </u>							A	-6400-204(2-67)	

GRAIN SIZE ANALYSIS PLOT



SOIL MOISTURE DATA SHEET

PROCEDURE NO. ETAL-14 REV. NO. #

THERMOMETER NO. DOGG CALIBRATION DUE DATE Z-6-96

				1	1	
SAMPLE NO.	WET WT. + CAN	DRY WT. + CAN	CAN WT.	WET WT. SOIL	DRY WT. SOIL	% WATER
0-001	5475.29	5330.72	584.72	4890.57	4746.00	3.05
$\overline{}$		<u> </u>				<u></u>
	$\overline{}$			<u> </u>		
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				/		<u></u>
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				· · · · · · · · · · · · · · · · · · ·		
					<u> </u>	
		/				
	/				$\overline{}$	
						

ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND TEST PROCEDURES FOLLOWED TO PRODUCE THE ABOVE DATA

R.G ALEXANDER TEST OPERATOR:

1-16-90

SPECIFIC GRAVITY OF SOILS DATA SHEET

Test	Operator <u>R.G. A LEX</u>	ANDER		3 -	5-90	
	EQUIPMENT ITEM	<u> NO.</u>			DATE DUE	
Bala	ince .	3364			-26-90	
	n Thermometer	0007			-16-90	
	rmometer nometer	5002			-9-91	
	ng Agent "Q" WATER	7564			N/A	
	DETERMINATION NO)	1		2	3
	Drying Container No.		NA		N/A	NA
	Wt. Container + Oven Dry Soil,	± 0.01g	N/A			
w,	Wt. Container, ± 0.01g			==		
	Wt. Oven Dry Soil, g		40.			
	Pycnometer No.		2554			
	Wt. Pycnometer, g		135			
w,	Wt. Pycnometer + Wetting Age	ent, g	387 ·-	<u></u> _	·	
W _b	Wt. Pycnometer + Wetting Age	nt + Soil, g	412.	60		<u>_</u>
	Temperature, T _x at W _b , °C		24.4	<u> </u>		
3 _w	Specific Gravity of Wetting Age	nt at T _x	<u> </u>	00		
5,	Specific Gravity of Soil at T _x		2.3	7 4		
,	Specific Gravity of Soil at 20°C		<u>2</u> .	<u>7 5</u>	1	1
G _t =	$\frac{G_{w^{\bullet}}Y_{w^{\bullet}}W_{o}}{W_{o} + (W_{a} - W_{b})}$					
	Init Weight Of Water (g/cc)		Average Specific Gravity At 20°c			<u>2</u> .
G, = 1 value	K·G _t es found in ASTM D854-58, Table	1				
	G _s = G _t When Test Run at 20 °c			•		
RAINE	QUIRED DATA ARE ACCURATELY D AND UTILIZED CALIBRATED TO OLLOWED TO PRODUCE THE AR	EST INSTRUMENTS AS IN	ORDED. THE T DICATED ABOV	EST OPER	NATOR WAS APPROPRI DVED TEST PROCEDUR	ATELY IES
	d By H Barry				3-7-90	. 1

			HYDROMETER A	NALYSIS DATA SHEET				
Sample II	0-	001		Page	eof			1
		Tested By Ho	Benny	Date 3-8	•			
		Procedure ETA	4607 Rev /	Date Issued <u>11-15-89</u>	·			
		EQUIPA	MENTITEM		BRATION E DATE			
		Hydrometer		1000 2-	16-91	1		
		Balance		3304 3-	25-90	- }		
		Thermomete	r/Thermocouple	2000	9-91			
Specific	gravity o	of Sample2	2.75					
			19,4 (%)	HYGROSCOPIC	MOISTURE C	ONTENT		
			•	Wt. Container + Air Di	ry Soil	<u>/A</u> (9	g)	
nygrosc	opic Corre	ection Factor	<u> </u>	Wt. Container + Oven	Dry Soil	<u>V4</u> (g)	
	. <u>M</u>	VEIGHT OF SAM	PLE	Wt. Container	NA	(ç	3)	
Wt. Con	ntainer +	śoil	//A(g)	Water Content	NA	(%)	
Wt. Con	tainer		(g)	_				
Wt. Soil		·	100.38 (g)	<u>R1</u>	<u>MARKS</u>			
	•			Tube C				
~~,	COV	MPOSITE CORRE	CTION					
1st Read	ding	at	<u>24.2 °</u> c	W= 203.20				1
∞ 2nd Rea	ading	<i>NA</i> at	<i>/\/A</i> °c				:	
								
3 .		•				<u></u>		
· 'S	, 				7		- 	-
Date	Clock time	Elapsed time (min)	Hydrometer reading	Hydrometer with composite correction	Temp. (°C)	Soil in suspension	Particle diameter	
<u> </u>		2.0			 	(%)	(mm)	-
3-8-90	} '' '' '	5.0	28	21	22.7	10,1.	0.031.	\ \@
	0849		23	16	22.7	7.7	0.020	3
	0859	15.0	20	136	22.5	6.Z'	0.012	-
	0914	30.0	17	10	22.4	4.8.	0.009.	-
	0944	60.0	13	6	22.0	2.9.	0.006	
	12 54	250.00	10	3	22.0	1.4.	0.003.	_
3-9-90	0844	1,440.0	8		22,4	0.5	0.001 .	
Formulas	and Tables u	used to calculate pe	rcent Soil in suspension, p	article diameter and hygroscopic co	rrection factor a	re found in AS	TM D422.	
	ALL REQUI	RED DATA ARE ACC	URATELY AND COMPLET	TELY RECORDED. THE TEST OPERAT	OR WAS APPRO	PRIATELY]	
	TRAINED	ND UTILIZED CALIED TO PRODUCE THE	RATED TEST INSTRUMEN	ITS AS INDICATED ABOVE. APPROVE	D TEST PROCEC	URES WERE]	
(legand	Date	90			

A-6400-205 (1.87)

W	Westingh Hanford	ouse Company
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7-1

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• • • • • • • • • • • • • • • • • • • •	CHAIN OF CUSTODY	
Company Contact:	on Lindberg Telepho	ne: <u>6-5005</u>
Sample Collected by: <u></u>	M. Singleton Date: 1-30	4-90 Time: NA
Sample Locations: <u>Hol</u>	rn Rapids LANDFILL, MU	V9
ce Chest No.:	NA Field Logi	book Page No.:
Remarks: <i>Test Regu</i>	rested, Grain Size é mois y	rus test flydom
Wethod of Shinment:	CARTTUCK to 2101-M	
water of simplification and	Sample Identification	
MW9-1, -716	of soil in plastic breg	
- Consistence		
Fes 1-4-90		
M419-72	101/202	
MW9-2,~	U 165 of Forx	
in plastie bay		·
111.16 3 4	<u> </u>	
MW9-3,~6	165 of soil	
in plante has	9	
CHAIN OF POSSESSION		
Relinquished by:	Received by:	Date/Time:
JAM well 11	Side RG Alexanoge	1-9-90/063=
Relinquished by:	Received by: REAlyland	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
		· · · · · · · · · · · · · · · · · · ·



SAMPLE ANALYSIS REQUEST

PART I: FIEI	LD SECTION		
Collector:	K.M. Single ton 0	ate Sample	ed: <u>1-3E4-90</u> Time: <u>NA</u> hours
	J		Telephone () 6-5005
SAMPLE NUMBER	NUMBER & TYPE OF SAMPLE CONTAINERS	TYPE OF SAMPLE	ANALYSIS REQUESTED
MW9-1	1 plantes bog of sorel	50l	Moisture / Sieve / Hydrometer
MW9-7	1 planter bag	soil	Maisture/Sieve/Kydromets
MU-9-3	1 plantes bag	soil	Mistruo/Siere / Hydonnete
Field Inform	nation **		
Special Han	idiling and/or Storage		
	ABORATORY SECTION		
-	guired		• Dat•
• Indicate	Whether Sample is Soil, S	Sludge, Wa	ter, Etc. n Relative to Sample Location.

54-3000-022 (09/88)

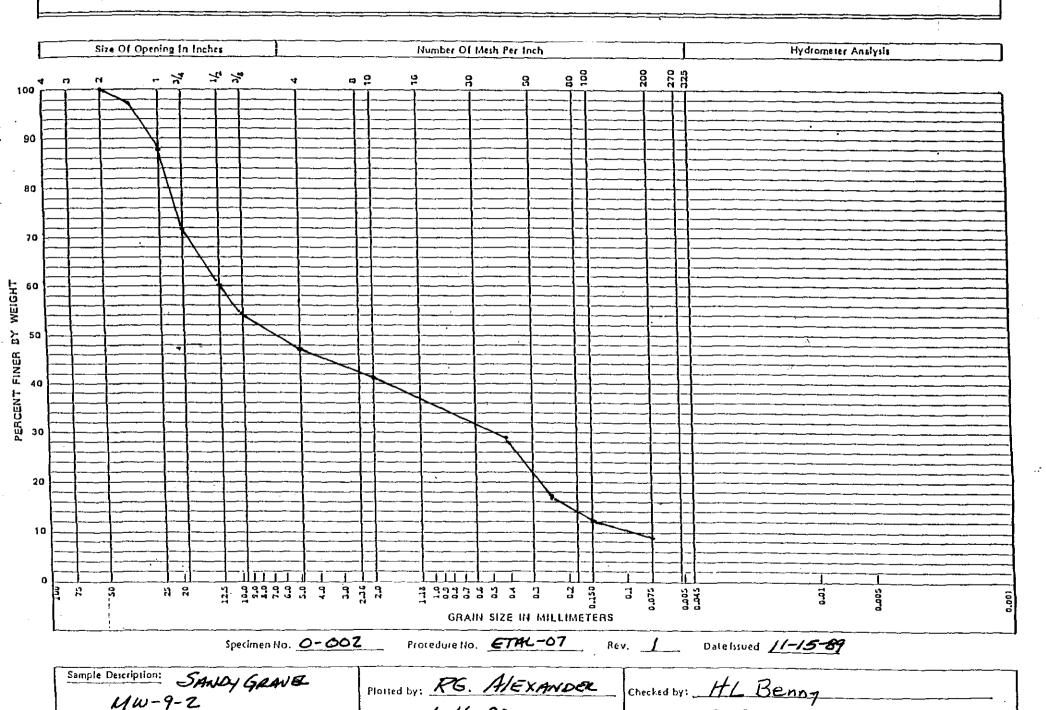
RAI	DIATION RELEASE
MIN -	Bate 1-4-89
Bldg.	D
Released By	Operational Health, sysics
Remarks	V
MW-4-	54-3000-022 (09/88)

TEST REQUEST FORM

Sample/Specimen No.	0-002	Cost Code/Work Order No. ED 332
Requested By: Org	80232	PersonJ.LINDBERG Date 1-16-90
Test Requested	No. of Samples	Test Lab Information (Instruction Used)
SIEVE ANALYSIS	1	ETHLOT
HUDROMETER		ETAL-07 (IF REP)
MOISTURE	1	ETAL -14
NIA	NIL	N/A
	•	
Remarks FIEW SA Mw-1-2	WACE	Received By: RG Alexander Date 1-9-90
1-1W-1-6		Approved By: RG Alexander Date 1-16-50

			SIEVE ANA	LYSIS DAT			
		le ID <u>O</u> -			Page _/_		
	Те	sted By_	RG. Alexan	CADE 1	Date <u>l-14-9</u>	10 4	
	Pr	ocedure_	ETAL-07 Re	<u> </u>	Date Issued <u>l</u>	1-15-89	
		EQUIPMI Balance Thermom		LIBRATION 1 3304 OCOG	NO. DATE I 3-25 2-6 N/A	-90 -90	
Sampl		_	SANDY GR		— Sieve Ti	•	nin)
		iby 🕱	splitting		_ □ stockp	ile	
BEF	(D) ORE TI	est wt. L	AFTER TE	st wt. N/A	$\frac{B-A}{B} \times 100 = A$	/A % LOSS	··•••
Sleve ID Number	Sieve Size	Sample Weight	Cumulative Wt. Retained (g)	% Retained	Cumulative %	Cumulative 7.	% Pagg
1/4	2	4826.06	Ø	54	ø	100	100
	1/2		127-69	2.4	2.6	97.4	97.4
	Ī		592.47	12.3	12.3	87.7	87.7
	3/4		1354.06	28-1	Z8.1	71.9	71.9
	1/2		1925.54	39.9	39.9	60.1	60.1
	3/8		2216.56	45.9	45.9	54.1	54.1
	#4	4	2565, 56	<i>53.</i> Z	53.2	44.8	46.8
	#10 ,	4826.04		58.9	58.9	46.1	41.1
	440	110.66	 	30.1	30-1	69.9	28.7
	460	1	45.46	59.3	59.3	40.7	16.7
	#100		77.58	70,1	70./	29.9	12.3
	1200 1200		87.77	79.3		20.7	
		Modules (FN			79.3	*	8.5
		· · · · · · · · · · · · · · · · · · ·	NO. 200 SIE	·			
			ssing a 200 Siev	· · · · · · · · · · · · · · · · · · ·	Remark		
D=Original	l Dry We	ight of Sar	mple ,	110.66 8		FINE GR	<u>AD WG</u>
E=Dry Wei			er Washing/Sleve	87.77 _g	Shupu		
	C = <	(D-E)/D> X	100				
			URATELY AND				T
		R WAS TR By <u>HU</u>	ained and us	SED CALIBRA		MENTS <u>1-19-90</u>	
<u>. </u>		*				-6400-204(2-67)	

GRAIN SIZE ANALYSIS PLOT



Dale: /-/6-90

Date: 1-18-90

SOIL MOISTURE DATA SHEET

PROCEDURE NO. ETAL-14 REV. NO. Ø

THERMOMETER NO. CALIBRATION DUE DATE 2-6-30

		,				
SAMPLE NO.	WET WT. + CAN	DRY WT. + CAN	CAN WT.	WET WT. SOIL	DRY WT. SOIL	% WATER
0-002	5483.71	5404.12	578.06	4905.65	4826.06	1.45
					/	
		\			·	****
						** .
			Δ			
	/					
/				<u></u>		
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/			<u> </u>			$\overline{}$

ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND TEST PROCEDURES FOLLOWED TO PRODUCE THE ABOVE DATA

R.G ALEXANDER TEST OPERATOR:

DATE 1-14-90

Westinghouse Hanford Company
Company Contact:

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	CHAIN OF CUST	FODY	
Sample Collected by: K. Sample Locations: Hotel	M. Singleton n Rapids Laud NA	Telephone: 6500 Date: 1-364-90 Time FULL MUY Field Logbook Page No.: E E mois two testing	: NA
	Sample Identific	ation	
- Consistent Jes 1-4-90			
MW9-2,-1	Dlbs of soil		
MW9-3,~6	165 of soil		
CHAIN OF POSSESSION			
Relinquished by:	Received by:	Date/Tir	me:
Relinquished by:	Received by: RE	Stephend Date/Tir	ne:
Relinquished by:	Received by:	Date/Tir	 ne:
Relinquished by:	Received by:	Date/Tir	ne:



SAMPLE ANALYSIS REQUEST

	LO SECTION K.M.Single for D	ate Sample	d: 1-384-80 па	e: AA hours
,ollector:	h.m. Cmgre ia	ate Sample	/	16. <u>707 /</u> 110413
Company Co	ontact Jan Lind	berg	Telephone ()	6-5005
SAMPLE NUMBER	NUMBER & TYPE OF SAMPLE CONTAINERS	TYPE OF SAMPLE	ANALYSIS REC	UESTED
MW9-1	1 plantes boy of soul	50l	Moisture Sieve	[Hydromete
MW9-7	1 planter bag	soil	Moisture/Sicre/	Hydrometr
MW-9-3	1 planter has	Soil	Misturof Siere,	l kydamet e
			<u> </u>	
			· · · · · · · · · · · · · · · · · · ·	
Field Inform				
obeciai Har	idling and/or Storage			
	ABORATORY SECTION			
	quired	Tile		Date
-	Whether Sample is Soil,	Cludes Wed	51-	

RADIATION RELEASE

Bldg. MW-9 Date 1-4-83

Released By Operational Health Physics

Remarks

RADIATION RELEASE

Bldg. MW-9- S4-3000-022 (09/88)

Remarks

RADIATION RELEASE

Bldg. MW-9- S4-3000-022 (09/88)

Released By Operational Health Physics

Remarks

Remarks

Remarks

Remarks

Remarks

Remarks

54-3000-022 (09/88)

TEST REQUEST FORM

Sample/Specimen No	.0-003	Cost Code/Work Order No. ED-332
Requested By: Org	. <u>80232</u>	Person J. LINDBERG Date 1-16-90
Test Requested	No. of Samples	Test Lab Information (Instruction Used)
SIEVE AUNTSIA		ETAL-07
HYDROMETER		ETAL-07 (IF RED)
MOISTURE		ETAL-14
	<u> </u>	N/A
Remarks FIEW S MW-9-3	Ampuê	Received By: RE ALEXANDER Date 1-9-90 Approved By: RE ALEXANDER Date 1-16-90

			SIEVE ANA	LYSIS DAT			
		le ID <u>O</u>			Page/		
Tested By RG AIEXANDER Date 1-16-90							
	Pr	;; cocedure	ETAK-07 Re	<u> </u>	Date Issued_	11-15-89	
			NT ITEM CA		NO. DATE I		
		Balance Thermome	otar	3304 0006	3-25 2-6-		
				N/A			
Samp!	le Desc	eription	SANDY GR	AVEL	— Sieve Ti	me /0 (1	min)
	reduced	d by 🗽	splitting]	quartering	stockp		
BEF	/m\			741	$\frac{B}{B} \times 100 = 2$		
Sleve ID	Sieve	Jampie	Cumulative Wt.	% Retained	Cumulative %	l .	% Pass
Number	Size	Weight	Retained (g)		Retained	Pass	
N/A	2	3930.37	ø	ø	Ø	100	100
	11/2		Ø	Ø	9	100	100
	1		474.62	12.1	12.1	81.9	87.9
	3/4		603.00	15.3	15,3	84.7	84.7
	1/z		695,31	17.7	17.7	87.3	82.3
	3/8		747.82	19.0	19.0	81. o	81.0
	#4		841.04	21.4	21.4	78.6	78.6
	#10.	3930.37	912.14	23.2	23.2	74.8	74.8
	#40	115.31	35.42	29.0	29.0	71.0	
	*60		81.21	70.4	704	29.6	54.5 22.7
	#100		98.92	85.7	85.7	14.8	11.0
	# 200	1	107.03	9z.8	92.8	7. Z	5.5
<u> </u>	Finess h	Modules (FM			36-83, Section		0.0
MATERL	ALS FI	VER THAN	NO. 200 SIE	VE BY WASE	ING		,
			sing a 200 Sleve		Remark		
_	-	eight of Sam		11.5.31 g		FINE GR	
E=Dry Wei			Washing/Sleve	107.13g			
		(D-E)/D> X		···			
					LY RECORDED ATED INSTRUI		T
		By <u>H</u> L		TIP OSTITUTO		1-18-90	
L			/			#400-204(2-87)	

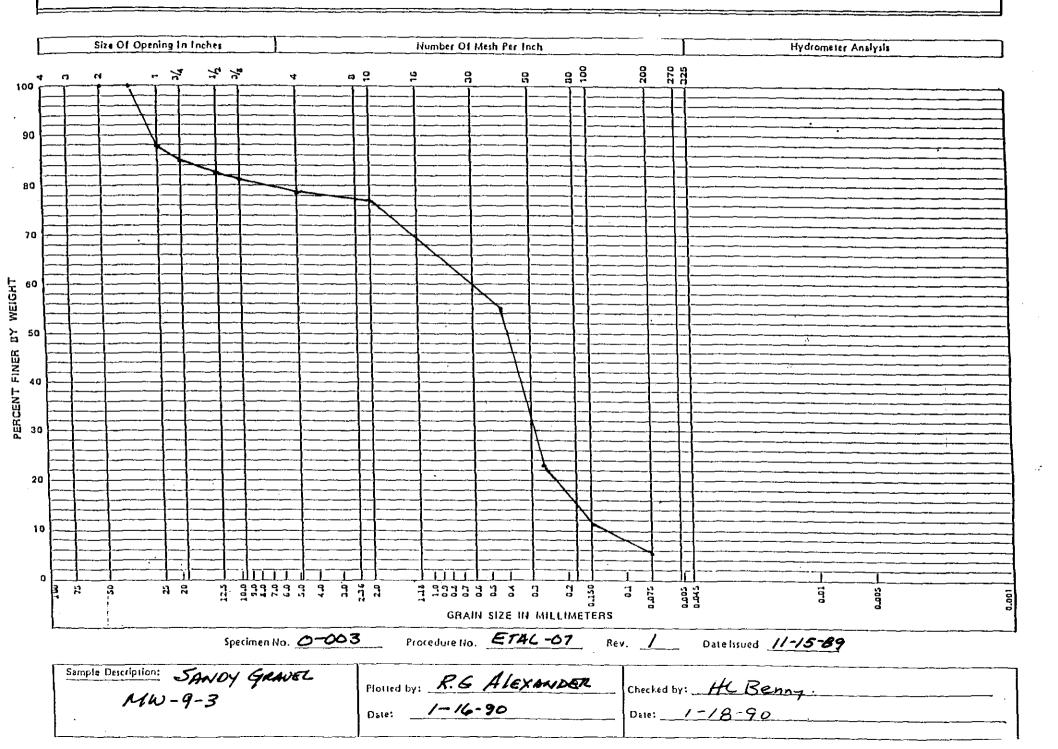
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GRAIN SIZE ANALYSIS PLOT



SOIL MOISTURE DATA SHEET

PROCEDURE NO. ETAL-14 REV. NO.

THERMOMETER NO. 2006 CALIBRATION DUE DATE 2-6-90

SAMPLE NO.	WET WT. + CAN	DRY WT. + CAN	CAN WT.	WET WT. SOIL	DRY WT. SOIL	z water
0-003	4631.04	4519.76	589.39	4041.65	3930.57	2.83
						·
<u> </u>		$\overline{}$				
			\times			
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	/_					
	/	×				

ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND TEST PROCEDURES FOLLOWED TO PRODUCE THE ABOVE DATA

TEST OPERATOR:

R.G. ALEXANDER

DATE /-/4-90

(Y)
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lce
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4

Westinghouse Hanford Company	OHAIN OF CHOTODY	,
	CHAIN OF CUSTODY	,
Company Contact:	in Lindberg	Telephone: <u>6-5005</u>
Sample Collected by: <u>K.</u>	M. Singlekon po	te: 1-364-90 Time: NA
Sample Locations: <u>Hor</u>	n Rapids LANDFU	W, MW/9
ce Chest No.;	NA	Field Logbook Page No.:
lemarks: Test Reque	sted, Grain Size E	moistue test flydome
Method of Shipment:	ANTINCK TO 210	51-M
	Sample Identificatio	
MW9-1, -7/68	oF soil in plante bag	
-trocstus	, ,	
ES 1-4-90		
in plante bay	Olbs of soil	
MW9-3,~6,	165 R soil	
in plastic has	<u> </u>	
CHAIN OF POSSESSION		
Relinquished by:	Received by:	Date/Time:
	CLA DE Mous mos	1-9-90/0632
JAM WILL SH	WW-87 M. C. MICE PIPMUS!	
Relinquished by:	Received by: REALY	Date/Time:
		4.60

W	Westingh Hanford	ou se Company
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SAMPLE ANALYSIS REQUEST

Company Co	ontact Jon Lind	berg.	Telephone () 6-5005
SAMPLE NUMBER	NUMBER & TYPE OF SAMPLE CONTAINERS	TYPE OF SAMPLE	ANALYSIS REQUESTED
MW9-1	1 plantes bog of soul	50l	Maisture / Sieve / Hydroma
MW9-7	1 planter bay		Moisture/Sieve/Hydro ne
MW-9-3	1 photos hag	soil	Mistruof Sieve Hydame
Field Inform	action **		
Special Han	dling and/or Storage		
	ABORATORY SECTION		
received by		THI	Date

RADIATION RELEASE

Bldg. Mw-9 Date 1-4-89

Released By Operational Health Rysics

Remarks

RADIATION RELEASE

Bldg. MW-9-2

S4-3000-022 (09/88)

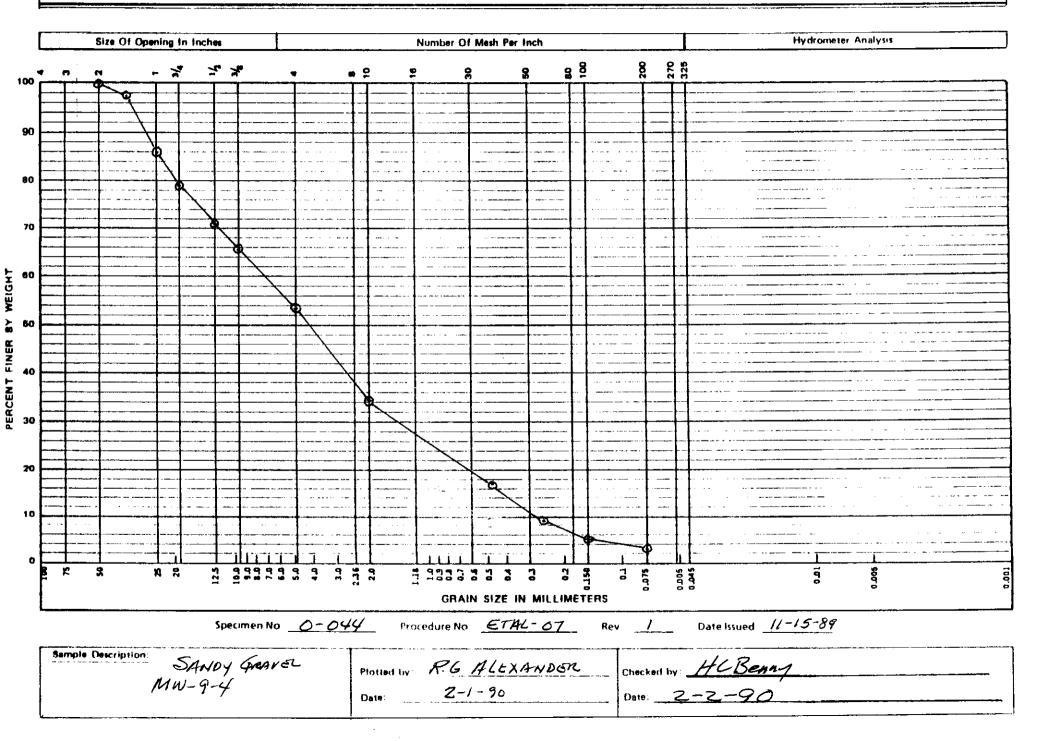
S

TEST REQUEST FORM

Sample/Specimen No.	0-044	Cost Code/Work Order No. <u>ED332</u>
Requested By: Org.	80232	Person J. LINDBERG Date 1-31-90
Test Requested	No. of Samples	Test Lab Information (Instruction Used)
SIEVE ANALYSIS		ETAL-07
HYDROMETER		ETAL-67 (IF REQ)
N/A	N/A	N/A
N/A	4/4	N/B
	•	
Remarks FIEUD SA MW-9-4	MPUS	Received By: RG Alexander Date 1-23-9 Approved By: R-G Alexander Date 1-31-91

<i></i>				·····		· · · · · · · · · · · · · · · · · · ·	
			SIEVE ANAI	YSIS DAT			
		e ID			Page/		
Tested By R. G. Alexander Date 1-31-90							
Procedure ETAC-07 Rev Date Issued 11-15-89							
		EQUIPME	NT ITEM CAI	LIBRATION N	O. DATE D	UE	
		Balance		3304	3-25-	90	
Thermometer 0006 2-6-90 N/A WA WA							
Sampl			SAMOY GRA		— Sieve Tir	•	nin)
		by 🛣 :	splitting [Y quartering (A)	: 🗆 stockp	ile	
BEF	(B) ORE TI	EST WT.N	AFTER TE	ST WT. MA	$\frac{B-A}{B}X \ 100 = \frac{A}{A}$	MA % LOSS	
Sieve ID	Sleve	Sample	Cumulative Wt.	% Retained	Cumulative %	Cumulative %	% Pass
Number	Size	Weight	Retained (g)		Retained	Pass	i I
N/A	2"	4579.91	Ø	Ø	Ø	198	100
[1/2		109.93	2.4	2.4	97.6	97.6
			642.66	14.0	14.0	86-0	86.0
	3/4		956.13	20.9	20.9	79.1	79.1
	1/2		1317.16	28-8	28.8	71.2	71.2
	3/8		1567.86	34.2	34.2	65.8	45-8
	#4	V	2131.88	46.6	46.5	53.5	53.5
	#10	4579.91		65.9	65.9	34.1	34.1
	¥40	157.17	80.93	515	51.6	48.5	16.5
	\$60		116-60	74.2	74.2	25.8	8.8
	±160		134.00	86.3	85.3	14.7	5.0
4	¥ 200		148.49	91.3	91.3	8.7	3.0
	·	dodules (FM			36-83, Section		
MATERL			NO. 200 SIE		,		
			seing a 200 Slev	·	Remarl		
D=Origina	l Dry We	lght of San	iple	157.17 g		FINE GRAD	טאנט
E=Dry Wel	ight of S	Sample Afte	r Washing/Sleve	14/3.49	SAM	u Field Ole	
	C = <	(D-E)/D> X	100				
			URATELY AND				T
			AINED AND US	SED CALIBR	_	- I I X	
L Ch	Degree	By HUB			Date	T	
					λ.	-8400-204(2-87)	,

GRAIN SIZE ANALYSIS PLOT



SOIL MOISTURE DATA SHEET

PROCEDURE NO. <u>ETAL-14</u> REV. NO. <u>Ø</u>

THERMOMETER NO. <u>OOO4</u> CALIBRATION DUE DATE <u>Z-6.90</u>

SAMPLE NO.	WET WT. + CAN	DRY WT. + CAN	CAN WT.	WET WT. SOIL	DRY WT. SOIL	% WATER
0-044	5514.81	5168.39	588.48	4924.33	4579.91	7.56
					_	
- to the state of						
			<u> </u>			
 						
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			1			
				!		

ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND TEST PROCEDURES FOLLOWED TO PRODUCE THE ABOVE DATA

TEST OPERATOR:

R.G. ALEXANDER

DATE 1-31-90

W	Westingh Hanford	ouse Company
	Mantora	Company

CHAIN OF CUSTODY

Company Contact: JWLindberg	Tele	phone 6-5005
Sample Collected by: Steve and	erson Date: Jan	5-6,1990 Time: NA
Sample Locations: Temp. Well	No. MW-9	
	Field Logbook &	Page No.: NA
Remarks: GERGLA 1100-Em. Well, south-west		
	Off Site Property	
Method of Shipment: Hand Cary	Ά	
Shipped to: Jerry Alexano	<i>ن</i> .	
MW-4-9-4 below 7 MW-9-5 11 11 MW-9-6 " 11	Sample Identification	
CHAIN OF POSSESSION Relinquished by: Steve L America	Thind were	Date/Time: Jan 9 1990; 11:15
Refinquished by: Juliaburg JwLindberg R	Received by: Softyand R.G. Alexan	Date/Time: 1-28-90/0605
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
		FVR\071889~

8	Westingh Hanford	ouse Company
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	· · · · · · · · · · · · · · · · · · ·		d: <u>Van 5-19 190</u> Time: <u>AVA</u> hour Telephone (200) 376-5005
SAMPLE NUMBER	NUMBER & TYPE OF SAMPLE CONTAINERS	TYPE OF SAMPLE	ANALYSIS REQUESTED
1W-9-4	double-lined plastic bass	Soil	Particle Size
NW-9-5	J	501	Partide Size
1W-9_6	4 split spoon liners	ail	Permentality Particle size Attende
NW-9-7	double-lined plastic bas	Soil	Particlesize Atterberg L.
m49-8		Soil	Particle Size
NU)-9-9	11 11 11 11	501	Particle Size
ield Infor)	
	ABORATORY SECTION	net e	dow mw-9-6 to freeze
		Title	Date
	quired		

RADIATION RELEASE	RADIATION RELEASE
Released By Operational Health Physics	Released By Operational Health Physics
Remarks	Remarks < D F a & An Deit
54-3000-022 (09/88)	54-3000-j22 (09/88)
RADIATION RELEASE Bidg. MW-9-6 gate 1-8-90	RADIATION RELEASE Bidg. MW-9-Z Date 1-18-90
Released By Operational Health Physics Rem wks	Released By Operational Health Physics Remarks
54-3000-022 (09/88)	54-3000-022 (09/88)
RADIATION ASE MALL -9-8 Date 1-18-90	RADIATION RELEASE Sum MW9 - 9 Date 1-18-90
Operational Health Physics Remarks	Released By Operational Health Physics
54-3000-022 (09/88)	Sample 54-3000-022 (09/88)

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TEST REQUEST FORM

Test Requested	No. of Samples	Test Lab Information (Instruction Used)
SIEUE ANALYSIS	/	ETAL-07
HYDROMETER		ETAL-07 (IF RED)
NA	NA	N/A
N/A	N/A	NA

			SIEVE ANAL	YSIS DAT	A SHEET	· · · · · · · · · · · · · · · · · · ·	
	Sampl	e ID <u></u>	-045		Page _/	lo	
	Te	sted By <u>/</u>	P.G Alexan	VOER I	ate /-3/-9	00	
	Pr	ocedure É	7741-07 Re	., / .	N.A. W	11 1 E S E	
		occadic <u>-</u>	ne	V	Date Issued_/	7-15-09	
		EQUIPME	NT ITEM CAL	IBRATION N			
		Balance Thermome	ter	3304 3 006	3-25 2-6-		
	; !	NIA		N/A			
Samuel	a Dane	wintian a	SANDY GRAI	v.F.L.			
					- Sieve Tir		min)
	/n\		,	quartering			
BEF	ORE TI	est wi. <u>//</u>	A AFTER TE	ST WT. NA	$\frac{B-A}{B}X 100 = \angle$	v/4 % loss	ı
Sieve ID	Sieve	Sample	Cumulative Wt.	% Retained	Cumulative 7	Cumulative 2	Z Pas
Number	Size	Weight	Retained (g)	% Wetained	Retnined	Pass	74 1 45
N/A	3/2	4604.83	420.98	9.1	9.1 9.1	90.9 90.9	90.4
1	11/2		734.26	15.9	15.9	84.1	84.1
	1		/172.32	25.5	25.5	74,5	74.5
	3/4		1460.73	31.7	3/.7	48.3	48.3
	1/2		1935.92	42.0	42.0	58.0	58.0
	3/8		2269.19	49.3	49.3	50.7	50.7
	#4	V	3029.38	65.8	65.8	34.2	34.2
		4604.83	3455.27	750	75.0	25.0	25.0
	#40	15611	21.87	14.0	14.0	86.0	21.5
	#60		40.36	38-8	38.8	41.2	15,3
	#100		/08.80\	69.4	69.4	30.6	7.7
	# 200	1	130.14	83.4	83.4	16.6	4.2
·	Finess	Modules (FM	()N/A(36-83, Section	8.2)	<u> </u>
MATERL	ALS FE	NEP THAN	NO. 200 SIE	VE BY WASE			
			ssing a 200 Slev		Remark		104011
		eight of San	-	156.11 "	WASH SmA	FINE GRA U FIELD	TUPNG
E=Dry Wel		Sample Afte :(D-E)/D> X	r Washing/Sieve	130.14		MPLE	
ī			URATELY AND AINED AND U				ST
1		By HU				2-2-90	

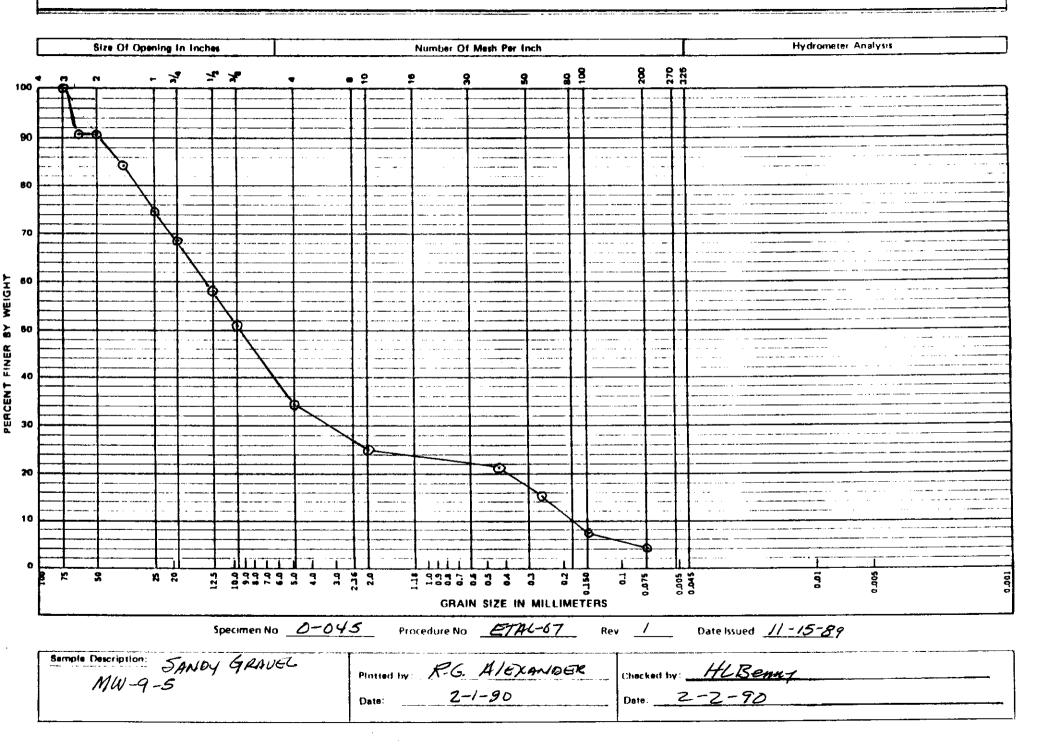
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GRAIN SIZE ANALYSIS PLOT



SOIL MOISTURE DATA SHEET

PROCEDURE NO. ETAL-14 REV. NO. Ø

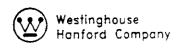
THERMOMETER NO. 0006 CALIBRATION DUE DATE 26-90

SAMPLE NO.	WET WT. + CAN	DRY WT. + CAN	CAN WI.	WET WT. SOIL	DRY WT. SOIL	% WATER
0-045	5510.93	5194.22	589.39	4921.54	44.04.83	4.88
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<u> </u>						
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			<u> </u>		<u> </u>	<u> </u>
			<u> </u>			
			: :			

ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND TEST PROCEDURES FOLLOWED TO PRODUCE THE ABOVE DATA

TEST OPERATOR: R.G. ALEXANDER

DATE 1-31-90



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CHAIN OF CUSTODY

Company Contact: JWLindberg	Telephone	6-5005
Sample Collected by: Steve and	erson Dote: Jan 5-6,	1990 Time: NA
Sample Locations: Temp. Well	No. MW-9	
	Field Logbook & Page N	10.:_NA
Remarks: GERGLA 1100-Em. Well, south-west	- side of Horn Rapids La	nater Monitoring
	Off Site Property No.:	
Method of Shipment: Hand Cary	<u>- </u>	
Shipped to: Jerry Alexand	ler	
mw-9-4 below V mw-9-5 ""	Sample Identification	
Relinquished by Steve L Ameron	Jetundhero	Date/Time: Jan 9 1990; 11:15
Reinquished by: Structure JWLindberg R	Received by: Coffee R.G. Alexander	Date/Time: /-28-90/0605
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
		FVR\071889~!

W) Westi Hanfo	nghous ord Co	mpany
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	Steve Anderson 1 Golder Assoc. Contact UW Lindberg			
SAMPLE NUMBER	NUMBER & TYPE OF SAMPLE CONTAINERS	TYPE OF SAMPLE	ANALYSIS RE	
10-9-4	double-lined plastic bag	s Soil	Particle Size	
nw-9-5	11 11 11 11	501	Partide Siz	¢.
	4 split spoon liners	æij	Permeubility, Partic	le size Attendo
	double-lined plastic ba	50:1	Particlesize F	Herberg L.
MW9-8	٠١ ١٠ ١١ ١١	Soil	Particle Size	
W-9-4	રક હ હ	Soil	Particle Size	
ield Infor	nation **			
	ABORATORY SECTION	o net .	Now MW-9-6-7	freeza
	<u> </u>	THE		Date
·				

RADIATION RELEASE	RADIATION RELEASE
Bidg. 11 201 - 4 Date 1-5-87	Bldg WELL# 1-5 Days 01-06-90
Released By Operational Health Physics	QPeretional Health Physics
Remarks	Remarks < D B a & small
54-3000-022 (09/88)	54-3000-122 (09/88;
RADIATION RELEASE	RADIATION RELEASE
Bidg. MW-9-6 Pate 1-8-90 Released By March	Bidg. MW-9-7 Date 1-18-90
Rem vks	Operational Health Physics Remarks
54.3000-022 (09/88)	/ Sample 54-3000-022 (09/88)
RADIATION. ASE Blog MU-9-8 Date 1-18-90	RADIATION RELEASE Blog. MW9 - 9 Date 1-18-90
Operational Health Physics Remarks	Released By Market Sperational Health Physics
Jample 54-3000-022 (09/88)	Sample 54-3000-022 (09/88)
e of the state of	
Miles Control of the	
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TEST REQUEST FORM

Sample/Specimen No	0-046	Cost Code/Work Order No. <u>ED 332</u>
Requested By: Org	80232	Person J. LIND BERG Date 1-31-90
Test Requested	No. of Samples	Test Lab Information (Instruction Used)
SIEVE ANDLYSU	1	ETAL-07
Hypeometer		ETAL-07 (IF REQ)
ATTERBORG LIMITS	,	ETAL-18
HYDRAULIC CONDUCTIVITY		Etal-09
,		
Remarks FIEW SAM MW-9-4	PLE	Received By: RG AlgkanderDate 1-23-90 Approved By: RG. Algkander Date 1-31-90

			SIEVE AN	ALYSIS DAT	'A SHEET		
!	Sampl	e ID <u></u> 6 -	046		Page _/_	10	
; 	Tes	sted By	26 Alex	ANDER	Date /-31-9	0	
	Pre	oceđure <u> Z</u>	T4L-07	Rev/	Date Issued <u>/</u>	1-15-89	
		EQUIPME Balance	NT ITEM C	CALIBRATION 1 3304			
 		Thermome		0006	2-6-	90	
		14/1		N/A	NI		
Samp					Sieve Ti		min)
<u> </u>		by 🗶 :		(A)			
BE	FORE TI	est wy. <i>M</i>	A AFTER	rest wt. 4/4	$\frac{B-A}{B} \times 100 = \frac{A}{2}$	4 % LOSS	3
Sieve ID Number	1	Sample Weight	Cumulative Retained (g)	Wt. % Retained	Cumulative %	Cumulative :	% Pass
NA						1	
1						1	
				i			
		F					
	1	¥	1	¥	4	, A	1
	#10	146.42	ø	1.8° Ø	Ø	100	100
	#40		4.17	Per 0. 3.0	3.0	97.0	97.0
	# 60		12.43	8.9	8.9	91.9	91.9
	\$100		27.24	19.4	19.4	80.6	80,6
<u> </u>	#200	+	45,60	32.5	32.5	67.5	67.5
	Finess l	Modules (FM	() N/A	_ (See ASTM C 1	136-83, Section	8.2)	
				IEVE BY WAS		1=0	
			sing a 200 S		Remar	FINE GA	CADING
_	_	eight of San	nple r Washing/Sk	14042 m	SMA	H FIELD	
r-riv n	-	sample Arte (D-E)/D> X		ev e <u>10000 e</u>	SA	MPLE	***************************************
A	LL DATA	ARE ACC	URATELY A	ND COMPLETE	ELY RECORDE	O. THE TE	ST
0	PERATO	R WAS ȚR	AINED AND		RATED INSTRU	MENTS	
C.	reckeq	By HC	Denns	.,	Date	2-13-90	<u>′</u>

A-8400-204(2-87)

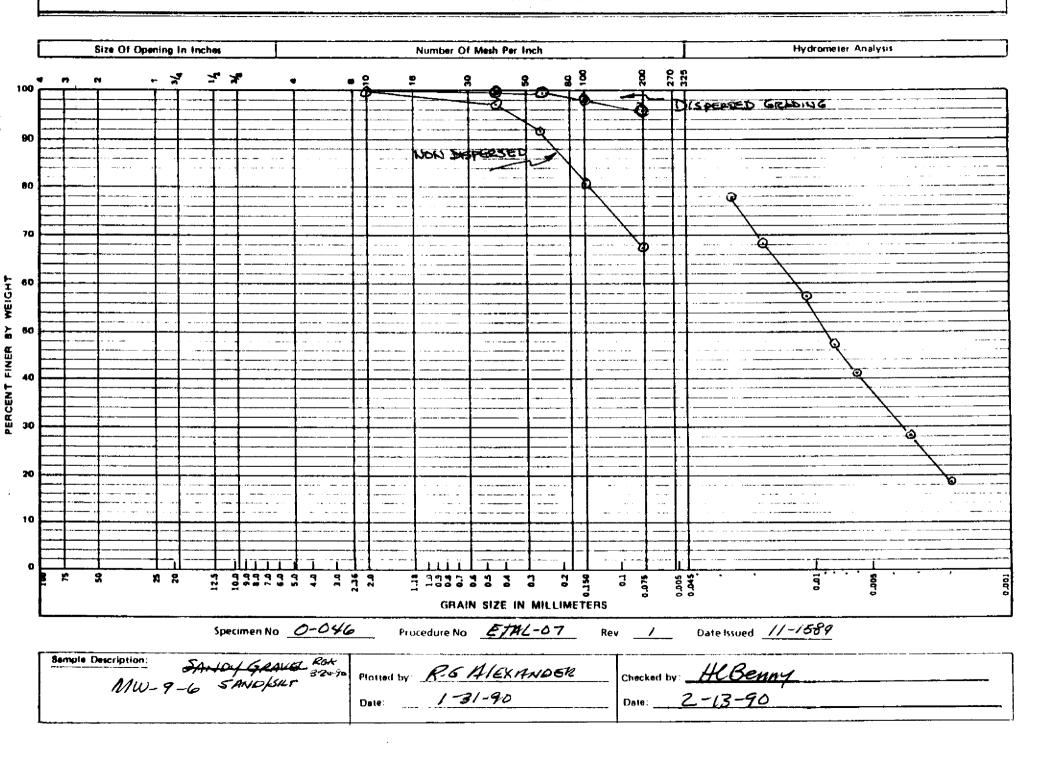
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									ANAI	YSIS	DAT	A SH	EET				
			Sa			0									1		
				Tes	sted	By	R.G	A	LEXAN	DER	1	Date_	3-20-	70			
				Pr	oced	ure_	ETAL	<u>-6</u>	7 Re	v <u> </u>	 :	Date I	ssued_	1/-15-	39		
				,	EQU		ENT I	TE	M CAL	IBRAT	ION N	10.	DATE I	UE SAO			
						mome				000	7		8-16 N/A	-90	ļ		
						N/A	4		.	N.	/ <u>A</u>		N/A				
	Sax	mpl	le l	Desc	ript	ion_	SA	40	SILT				ieve Tir	me 1		nin	,)
] stockp		\		.,
				/ l					**	1.1							
L		BEF	OK.	E TE	ST I	ντ. <u>.ν</u> χ		U.T	ER TES	ST WT		B	100 = 1	V/AL %	LOSS	, -	
	Sieve		i	leve	San	aple	Cum	ula	tive Wt.	% Ret	nined	Cumi	ilative %	Cumu	lative %	74	Pass
L	Numb	er	S	lze	Weig	ght	Reta	lne	d (g)			Ret	ained	Ps	733		
L	NA	+											_1		<u>. </u>		1
			į							•							
			7					1		1			V	,	1	7	
			#	O	70	94		9	5	ζ	Ø		Ø		90	1	50
			# 1			<u> </u>		0.	42	0	0.6		16	9	9.4	9	94
L			# 6	,0				0.0	04	0	9	0.9		9	9.1	9	91
			#)	ω			1	1.1	8	1-	7	1-7		9	<i>8</i> ∙3	98	7.3
			# 2	200		k		2.8	4	4	0	4.0		90	6.0	91	6.0
			Fin	ess M	lodul	es (FM	() <u> </u>	J/ ≱	(:	See AS	TM C 1	36-83,	Section	8.2)			
	MAT)	ERL	ALS	FIN	ER '	MAHT	NO.	20	0 SIEV	E BY	WASE						
ſ							-	a 2	00 Sleve			-	Remarl <i>Wash</i>		Disara		16
Į.				_		of San			(m)	70.94		-	AGENT		- 10/54		
	E=Dry	' Wel				e Afte /D> X		hin	g/Sleve	2.59	r 5	-					
		AΥ		==	<u> </u>		· · · · · · ·	<u>-</u> זקין	Y AND	COM	PT.RTR	LY RE	CORDEI).	IE TES		
		OP	ER	ATO	R WA	STR	AINE	D A					INSTRU	MENT	S		
		Ch	.ecl	ced	Ву_	1) 8	m	<u>ر</u>	7 45	عك	30	<u> </u>	Date ,				
I						\cup							٦.	-6400-2	04(2-87)		

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GRAIN SIZE ANALYSIS PLOT



SOIL MOISTURE DATA SHEET

PROCEDURE NO. ETAC-14 REV. NO.

THERMOMETER NO. 0006 CALIBRATION DUE DATE 2-6-90

SAMPLE NO.	WET WT. + CAN	DRY WT. + CAN	CAN WT	WET WT. SOIL	DRY WT. SOIL	% WATER
	 					
0-046	2597,45	2216.75	861.38	1767.87	1387.17	27.44
						<u> </u>
						<u> </u>
						
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		/				
		/				
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ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND TEST PROCEDURES FOLLOWED TO PRODUCE THE ABOVE DATA

TEST OPERATOR:

R.G. ALEXANDER

DATE 1-31-90

HYDROMETER ANALYSIS DATA SHEET

Sample II	o <u> </u>	046		Pag	e of					
	ſ	Tested By R.	GALEXAND	ER Date 3-/	9-90					
	ļ			Date Issued _//-/5-89			! 			
		EQUIPM	ENTITEM	NO. D	LIBRATION UE DATE	ļ				
		Hydrometer			-16-91	ļ				
		Balance		<u>3804</u> 3		İ				
	į.	Thermometer	r/Thermocouple	006 Z 3	2-9-91	_				
		f Sample		HYGROSCOPI	C MOISTURE C	ONTENT				
% Passi	ng No. 10 S	Sieve	<u>′00 (%)</u>	Wt. Container + Air I			5)			
Hygroso	copic Corre	ection Factor	NA							
				Wt. Container + Ove						
		<u>/EIGHT OF SAMI</u>		Wt. Container						
က Wt. Cor	ntainer + :	Soil	(g)	Water Content		(%)			
∽	ntainer ,		$\frac{N/A}{70.94}$ (g)	ļ	REMARKS					
. Wt. Soi		·	<u>/_/(9)</u>	TUBE C.	TUBE C					
_	COM	POSITE CORRE	CTION							
· 1st Rea	dina	<i>5</i> at	<u>24.0</u> °c	$\omega = 70.94$			<u> </u>			
			<i>23.</i> 4 °c							
				PAN 6 117.87	·					
		•								
						· · · · · · · · · · · · · · · · · · ·				
Date	Clock time	Elapsed time (min)	Hydrometer reading	Hydrometer with composite correction	Temp. (°C)	Soil in suspension (%)	Particle diameter (mm)			
>3.19	0842	2.0	60	55	24.0	78.3	0.024			
	0845	5.0	<u>53</u>	48	24.0	68.3	0.016			
	0855	15.0	45	40	23.9	56.9	0.010			
	0910	30.0	38	33	23.9	47.0	0,008			
	0940	60.0	34	29	23.9	41.3	01006			
	1250	250.00	25	20	24.1	28.5	0.003			
3-20	0840	1,440.0	18	/3	23.3	18.5	0,001			
Formulas		sed to calculate per	cent Soil in suspension,	particle diameter and hygroscopic of						
	[···-	i			
	TRAINED A	ND UTILIZED CALIBI	RATED TEST INSTRUME	ETELY RECORDED. THE TEST OPERA NTS AS INDICATED ABOVE. APPRO	TOR WAS APPRO /ED TEST PROCED	PRIATELY URES WERE				
	Checked By	TO PRODUCE THE	mea.	2 2.01.	- 90-	ĺ				
	Cuscked RA	-4/4	-0	Date <u>3-2/</u> .	/					

SPECIFIC GRAVITY OF SOILS DATA SHEET

Test 0	Operator R.G. ALEXANDER	 		3-	5-90		
•							
	EQUIPMENT ITEM	NO.			DATE DUE		
Balar		3304			-25-90		
	n Thermometer mometer	<u> </u>			-16-90 -9-91		
	ometer	2554			N/A		
Wettin	g Agent O" WATER						
	DETERMINATION NO.		1		2	3	
	Drying Container No.		N/A		NIA	N/A	
	Wt. Container + Oven Dry Soil, ± 0.01g		N/A			·-	
	Wt. Container, ± 0.01g		N/A -			۸	
w.	Wt. Oven Dry Soil, g		40 .	00	·	·_	
	Pycnometer No.		2554				
	Wt. Pycnometer, g		135 .	12	·		
w _a	Wt. Pycnometer + Wetting Agent, g		387	T 0	·	·_	
W _b	Wt. Pycnometer + Wetting Agent + Soil, g		4/1.5	20	·		
	Temperature, T _x at W _b , °C		24. 5	c · ·			
3 _w	Specific Gravity of Wetting Agent at T _x		1.2	1			
5,	Specific Gravity of Soil at T _x	· · · · · · · · · · · · · · · · · · ·	2.4				
G ₅	Specific Gravity of Soil at 20°C		<u>-2</u> .g		V		
G _t = ;	$\frac{G_{w^{4}Y_{w^{4}}W_{o}}}{W_{o} + (W_{a} - W_{b})}$						
/w = UI Gs = K	nit Weight Of Water (g/cc) •G _t		Average Specific Gravity At 20°c				
values	found in ASTM D854-58, Table 1	L.	_ 				
NOTE (G _s = G _t When Test Run at 20 °c						

PLASTIC INDEX SOILS DATA SHEET

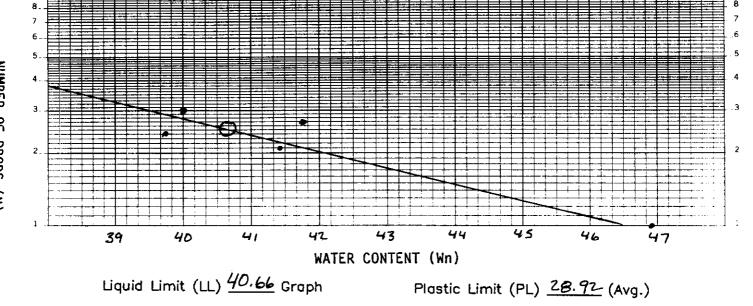
Sample No. 0-046

Page 1 of 2

Test Operator Huberny

Date <u>4/16/90</u>

Thermometer No. 0607 Calibration Date 8-16-90



Liquid Limit (LL) <u>NA</u> One Point

Moisture (PL) 27.97 % 30.87 % 27.91%

Moisture (LL) 40.66%

Plastic Index (PI)* 11.74

*PI = LL - PL

Remarks_

ALL DATA ARE ACCURATELY AND COMPLETELY RECORDED. 10 4/1/10
THE TEST OPERATOR WAS APPROPIATELY TRAINED AND ULITIZED
CALIBRATED TEST INSTRUMENTS. APPROVED TEST PROCEDURES WERE
FOLLOWED TO PRODUCE THIS DATA.

SOIL MOISTURE DATA SHEET

PROCEDURE NO. <u>ETAL-018</u> REV. NO. <u>\$</u>

THERMOMETER NO. <u>0007</u> CALIBRATION DUE DATE <u>8-/6-90</u>

SAMPLE NO.	WET WT. + CAN	DRY WT. + CAN	CAN WT.	WET WT. SOIL	DRY WT. SOIL	% WATER
0-046-1	21.53	21.13	19.70	1.83	1,43	27.97
-2 -3	22.49	21.82	19.65	2.84	2.17	30.87
-3	15.51	14.60	11.34	4.17	3.26	27.91
				Average	% Water	28.92
0-046-4	34.57	30.25	19.82	14.75	10.45	41.42
~5	32.91	29.18	19.79		9.39	39.72
-6	34.88	30.44	19.81	15.07	10.63	41.77
- 7	24.05	20 45	11.45	12.60	9.00	40.00
-8	28.72	23.15	11.27	17.45	11.88	46.89
			_			
7.12			_		-	
		· · · · · · · · · · · · · · · · · · ·				·

10

ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND TEST PROCEDURES FOLLOWED TO PRODUCE THE ABOVE DATA

TEST OPERATOR: HCBenny

HYDRAULIC CONDUCTIVITY OF SOILS DATA SHEET Page /_ Of <u>5</u> 0-046 Sample No. _ Test Operator R. G. AIEXANDER Date 1-31-90 NO. DATE DUE EQUIPMENT ITEM 3304 3-25-90 Balance 0006 2-6-90 Oven Thermometer N/A Thermometer Thermocouple Temperature Controller Pressure Gauge Pressure Transducer Pressure Transducer Back Pressure Gauge Pressure Transducer Pressure Transducer 5623 8-16-90 Calipers Load Frame Data Logger NIA NA MIA Immediate (User) Calibration Performed. (Documentation To Be Attached) Sample Preparation PARTICLE SIZE WEIGHT (Sieve Mesh Range) N/A To N/A N/A _____ То ____ _ To ____ _ To __ _ To . 100 % Total OTHER COMPONENTS Total 100 % ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND UTILIZED CALIBRATED TEST INSTRUMENTS AS INDICATED ABOVE. APPROVED TEST PROCEDURES WERE FOLLOWED TO PRODUCE THE ABOVE DATA.

SAMPLE PREPARATION

Determine Weight of Samples In Container

Container No.	10
Wt. of Sample + Container, g	2597.45
Wt. of Container, g	829.58
Wt. of Sample, g	1767.87

Determine the Water Content of the "Air Dry" Sample

Container No.	10
Wt. Container & Wet Soil (A), g	2597.45
Wt. Container & Dry Soil (B), g	22/6.75
Wt. of Water, g	380.70
Wt. of Container (C), g	829.58
Wt. of Dry Soil, Ws, g	1387.17
Water Content (W), %	27.44

$$W = (\frac{A \cdot B}{B \cdot C}) 100$$

SAMPLE COMPONENT	SPECIFIC GRAVITY, G	LABORATORY NOTEBOOK DATA LOCATION
N/A	N/A	N/A
N/A	NA	NIA
NIA	NA	N/A

ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY
TRAINED AND UTILIZED CALIBRATED TEST INSTRUMENTS AS INDICATED ABOVE. APPROVED TEST PROCEDURES
WERE FOLLOWED TO PRODUCE THE ABOVE DATA.

Checked By HCBerry

Date 2-13-90

SAMPLE COMPACTION

Compaction Method

Static WA

Tamping A

STATIC Load Applied, g/ Layer length, cm	er 1	N/A	11	N/A
Or	2	. L _	12	1_
No. Tamps per Layer/	3		13	
TAMPING Layer Length, cm	4		14	
	5		15	
	6		16	
, 1/4	,		17	
Total No. of Layers NB INTACT SAMPLE IN 4 *6"			1B	
INTACT SAMPLE IN 4 X6"	8		19	
Steel Tube	10		20	-
Tamper Foot Diameter cm		4/4		
Tamper Applied Load, g		NIA	_	
Sample Diameter, (d), cm		9.82		
Sample Length, (L), cm		15.25		
Sample Mold or Permeameter Weight & Compacted Sample	e, g	2822.04		
Sample Mold or Permeameter Weight, g		593.25		
Weight of Compacted Sample, (E), g		2228.79		
Weight of Container & Uncompacted Wet Sample, (A), g		2597.4	5	
Weight of Container & Uncompacted Dry Sample, (B), g		2216.7	5	
Weight of Water, g		380.70	5	
Weight of Container, (C), g		829.58	7	
Weight of Dry Soil, (WS), g		1387.17	7	
Water Content, %		27.49	4	
Compacted Bulk Density of Sample, (γm) , g/cc		1.93		
Completed Sample Dry Density, (7d), g/cc		1.51		4

$$\gamma_{\text{m}} = \frac{E}{(\pi) (d/2)^{2}(L)}$$

$$\gamma_{\text{d}} = \left(\frac{\gamma_{\text{m}}}{W + 100}\right) 100$$

ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND UTILIZED CALIBRATED TEST INSTRUMENTS AS INDICATED ABOVE. APPROVED TEST PROCEDURES WERE FOLLOWED TO PRODUCE THE ABOVE DATA.

Checked By HCBenny

0

Date 2-13-90

HYDRAULIC CONDUCTIVITY DATA SHEET

 Sample ID.
 0-046
 Page 4 of 5

 Procedure No.
 ETAL-09
 Date Issued 12-1-89

DATE	<u> </u>	TIME				VOLUM	E DETERMI	NANTS			
Year <u>90</u> (Mo/Day)	System Down (Hr: Min)	System Up (Hr: Min)	Time Change (Hr: Min)	Effli Temp (°C)	uent Weight (±0.1g)	Conta Tare (±0.1q)	ainer Tare & Ef- fluent(±0.1g)	System Temp (°C)	Pres Pore H ₂ 0 4psil pu	Back HaC	Operator Initials
2-7	-	16:35				67.73		-	191.0	NIA	RGA
2-9	1105	1110	42:30	22	3.88	67:13	71.61	22	191.0	NA	RLA
2-10	1110	1115	24:00	22	2.27	67.73	70.00	22	1910	NIA	Rep
2-12	0715	0720	44.00	de l	4.3/	67.73	72.04	21	191.0	Nela	Rest
2-12	1620	1625	9:00	_22	1.29	67.73	69.02	22	191.0	N/4	REA
2-78	0725	STOP	15:00	<u> </u>	1.27	67.73	69.00	22	191.0	NIA	ROA
2-13	570	PTES	T								RM
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Checked By HLBenny Date Z-13-90

HYDRAULIC CONDUCTIVITY DATA SHEET

Procedure No. ETAL-09

Page <u>5</u> of <u>5</u>

Date Issued 12-1-89

Date -	Date A Hydraulic Hydraulic		Effluent	Analysis	540	0
Year	Conductivity (cm/sec)	Gradient (cm/cm)	(Semple Number)	Lab. Notebook Location	Effluent Description	Operator Initials
2-7	START	TEST				RA
2-9	2.67 x 15 -8	12.53			CIENR	RGA
2-10	2.77 x/0 ⁻⁸	12.53		<u></u>	CLEAR	Ren
2-12	2.87 110-8	12.53	_	-	CLEAR	RGA
2-12	4.20 × 10-8	12.53			CLEAR	RGA
2-13	Z.48 x 10-8	12.53		_	CLEAR	RGH
2-13	STOP TEST	2.6 +/-	0.2 × 10-8 C	n/ sec		RGA
		<u> </u>				
			_			
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		 -		-		
		<u></u>			†	1

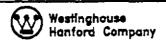
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Checked By HUBenny

Date <u>Z-/3-90</u>

CHAIN OF CUSTODY

Company Contact: JWLindberg		elephone 6-5005
Sample Collected by: Steve and	lerson Date: Je	in 5-6,1990 Time: NA
Sample Locations: Temp. Well	No. MW-9	
	Field Logbook	k Page No.: NA
Remarks: GERGLA 1100-EN Well, south-wee	7-1 Operable Unit, G t side of Horn Rap	roundunter Monitoring
Bill of Lading No.: NA		
Method of Shipment: Hand Cay	<u> </u>	
Shipped to: Jerry Alexan	der	
MW-9-6 " "	Sample Identification	
CHAIN OF POSSESSION Relinquished by: Relinquished by: Relinquished by:	Received by: Received by: Reflyer R.G. Alexa Received by:	Date/Time: Jan 9 19 90; 11:15 Date/Time: 1-28-90/0605 Date/Time:
Relinquished by:	Received by:	Date/Time:
		FVR\071889-1



SAMPLE ANALYSIS REQUEST

Collector:	Heve anderson	De	ate Sample	d: <u>Van5-17, 190</u> 71me: <u>AVA</u> hour
				Telephone (20) 376-5005
SAMPLE NUMBER	NUMBER & TYPE OF SAMPLE CONTAINERS		TYPE OF SAMPLE	ANALYSIS REQUESTED
MW-9-4	double-lined plastic	bags	50:1	Particle Size
MW-9-5	n n	""	501	ParticleSize
mw-9-6	4 split spoon lin	ers_	a il '	Permeability, Particle size Attende
	double-lined plasti	bag	50:1	Particlesize Atterbergs.
MW9-8		,, _C	50;	Particle Size
NW-9-9	+1 ft (t	e (Seil	Particle Size
Field Inform	nation **			
Special Har	ndiing and/or Storag	De	not a	llow mw-9-6 to freeza
	ABORATORY SECTION			
			Title	Date
	quired			

RADIATION RELEASE	RADIATION RELEASE
31dg. 11 3e1 #9 -4 Date 1-5-89	11dg. WELL#7-5 Dage D1-06-90
Released By Operational Health Physics	Operational Health Physics
Operational Health Physics Remarks	Remarks < D & Smolet
	11 to al has
54-3000-022 (09/88)	54-3000-122 (09/8*)
DADIATION DELEACE	
RADIATION RELEASE	RADIATION RELEASE
Bidg. MW-9-6 pate 1-8-90 Released By Market	Bidg. MW-9 - 7 Date 1-18-90
Operational Health Physics	Released By Operational Health Physics
Self Sample	Remarks
54-3000-022 (09/88)	54-3000-022 (09:88)
	en e
RADIATION	RADIATION RELEASE
Side 1-18-90 Date 1-18-90	sidg. MW9-9 Date 1-18-90
Operational Health Physics	Released By Operational Health Physics
Romarks	* Remarks
54-3000-022 (09:88)	Jample 54-3000-022 (09/88)
,	34-3000 022 (4-7)

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9

TEST REQUEST FORM

Requested By: Org	g. 80232	Person J. LINDBERG Date 2-1-90
Test Requested	No. of Samples	Test Lab Information (Instruction Used)
SIEVE AMALYSIS	/	ETAL-07
HYDROMETER		ETAK-07 (IF REQ)
MERBERG LIMITE	1	ETAL-18
NIA	N/A	N/A

			SIEVE ANAI	YSIS DAT			
		.e ID <u>Ø-</u> .			Page/		
	Te	sted By K	C. Alexan	DER I	Date 2-/-9	0	
	Pr	ocedure	<i>E744-07</i> Re	v <u>/</u> j	Date Issued_	11-15-89	
		EQUIPME Balance Thermome		LIBRATION N 3304 0006 N/A	NO. DATE I 3-25 2-6-	90	
Samp	le Desc	eription	SANDY GR	AVEL	- Sieve Ti	me <u>/O</u> (n	nin)
					g = stockp	-	
BEF	(B) ORE TI	EST WT.	AFTER TE	1.3			
Sieve ID Number	Sieve Size	Sample Weight	Cumulative Wt. Retained (g)	% Retained	Cumulative %	Cumulative %	% Pass
N/A							
	3/4	3899.52	Ø	Ø	Ø	100	100
	1/2		13.77	0.4	0.4	99.6	99.6
	3/8		13.77	0.4	0.4	99.6	99.6
	44	4	/3.77	0.4	0.4	99.6	94.6
	#10	3899.52	13.77	0.4	0.4	99.6	99.6
	#40	153.29	1.82	1,2	/.2	98.8	98.4
	#60		5.48	3.6	36	96.4	96.0
	#100		25.80	16.8	16.8	83, 2	82.9
<u> </u>	#200	*	84.54	55.2	<i>5</i> 5.2	44.8	44.6
	Finess l	Modules (FM) <u>N/A</u> (See ASTM C 1	36-83, Section	8.2)	
MATERI	ALS FI	NER THAN	NO. 200 SIE	VE BY WASE			
D=Orlgina	l Dry We	eight of Sam Sample After	r Washing/Sleve	153.29 "	Remarl WASI SIMA SAM	FINE GR	PADING
<u> </u>		(D-E)/D> X					
OP	ERATO		URATELY AND AINED AND US		ATED INSTRU		T
		~ 				#400 004/0 eg	

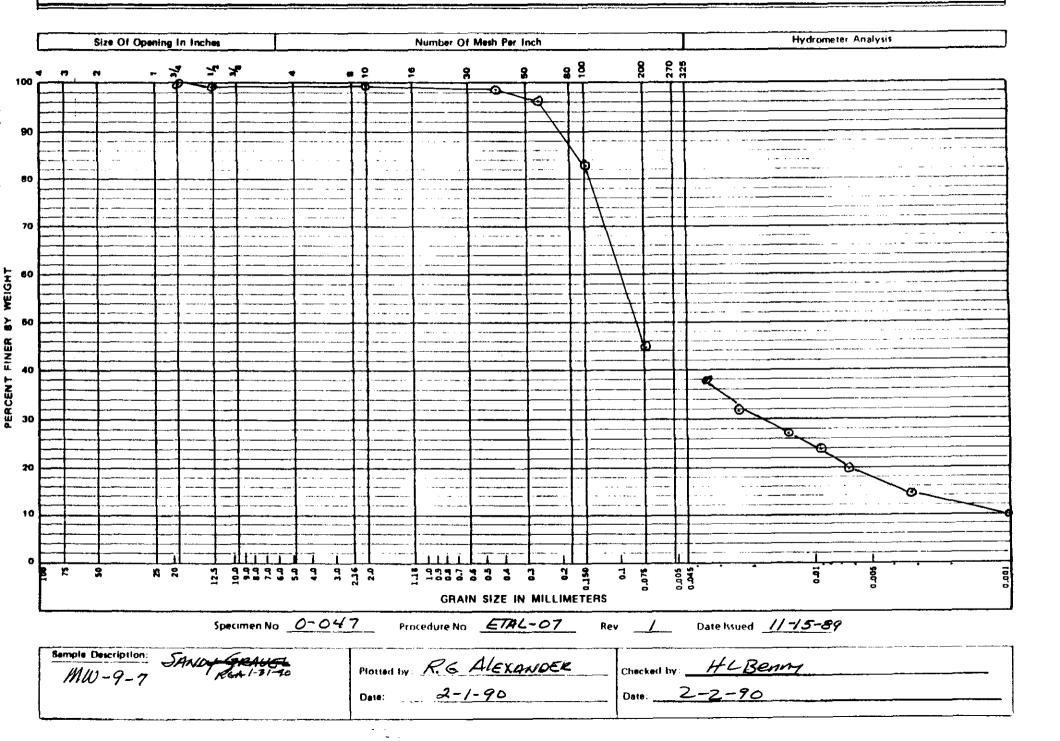
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GRAIN SIZE ANALYSIS PLOT



SOIL MOISTURE DATA SHEET

PROCEDURE NO. <u>ETAL-14</u> REV. NO. <u>Ø</u>

THERMOMETER NO. <u>OOO6</u> CALIBRATION DUE DATE <u>2-6-90</u>

SAMPLE NO.	WET WT. + CAN	DRY WT. + CAN	CAN WT.	WET WT. SOIL	DRY WT. SOIL	% WATER
0-047	55 30,47	4477.58	578.06	4952.41	3899,52	27.00
						K
					 	
		/				

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ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND TEST PROCEDURES FOLLOWED TO PRODUCE THE ABOVE DATA

TEST OPERATOR: R.G ALEXANDER

DATE 2-1-90

HYDROMETER ANALYSIS DATA SHEET

Sample II	0-	047		Pag	e <u>l</u> of	<u></u>	
			6 ALEXANDER	2 Date 3-20	-90	7	
	<u> </u>			e Issued 11 - 15 - 99			
•	ļ				IBRATION		1
	[EQUIPM	ENTITEM	NO. DL	JE DATE		}
		Hydrometer			3-25-90	İ	}
		Balance		3304		1	Ì
		Inermomete	r/The rmocouple		<u> </u>		
Specific	gravity o	f Sample	.55	HYGROSCOPIC	MOISTURE C	ONTENT	
% Passii	ng No. 10 !	Sieve <u>9</u>	9.6 (%)	Wt. Container + Air D		,	,
Hygrosc	opic Corre	ction Factor	NA				
				Wt. Container + Over			
	<u>~</u>	EIGHT OF SAM		Wt. Container			
Wt. Con	ntainer + :	soil	<u> </u>	Water Content	<u> </u>	(%	6)
Wt. Con	ntainer		<u>~/A</u> (g)	R	EMARKS		į
ົ Wt. Soil			71,31 (g)	<u> </u>	IEIVICA III.		
	, cot	POCITE CORRE	CTION	7.4			
-	·	IPOSITE CORRE		TUBE B			
			23.6_°c	w= 71.60		······································	· i
2nd Re	ading	<u> </u>	~/A °C				·
ie.							
· .							
Date	Clock time	Elapsed time (min)	Hydrometer reading	Hydrometer with composite correction	Temp. (°C)	Soil in suspension (%)	Particle diameter (mm)
<u>~</u> 3-20	0942	2.0	32	27	23.7	38,5	0.032
3-20	0945	5.0	27	22	23.8	31.3	
3-20	0955	15.0	24	/9	23.9	27.1	0.012
3 -20	1010	30.0	22	17	74.0	24.2	0.009
3-20	1040	60.0	19	14	23.8	19,9	0.006
3-20	/350	250 00	15	10	24.5	14.2	0.003
3-2/	0940	1,440.0	/2	7	23.2	10.0	0.001
Formulas	and Tables u	sed to calculate per		cle diameter and hygroscopic co			
	ALL 5501		LIGATEL VALUE COLOR COLOR	ABCCORDED THE TEST TO THE			
;	TRAINEDA	ND UTILIZED CALIB	RATED TEST INSTRUMENTS A	RECORDED. THE TEST OPERAT AS INDICATED ABOVE. APPROV	OR WAS APPRO ED TEST PROCEC	PRIATELY DURES WERE	
	}	TO PRODUCE THE	ABOVE DATA,	Date 3 - 23 -	90	, 	
	Checked By	John 1	Jelan	Date 3 23	<u> </u>		•

SPECIFIC GRAVITY OF SOILS DATA SHEET

Specimen/Sample No.	0-047	Page of
Test Operator R.G Alex	ANDER	3-6-40
EQUIPMENT ITEM	<u>NO.</u>	<u>DATE DUE</u>
Balance	3304	3-25-90
Oven Thermometer		8-16-90
Thermometer	<u></u>	2-9-91
Pycnometer	2554	N/A

Wetting Agent "Q" WATER

	DETERMINATION NO.	1	2	3	
	Drying Container No.	N/A	NYA	2/4	
	Wt. Container + Oven Dry Soil, ± 0.01g	N/A ·		·	
	Wt. Container, ± 0.01g	N/A	· -	Λ	
W _o	Wt. Oven Dry Soil, g	40.00	· <u> </u>	·	
	Pycnometer No.	2554			
	Wt. Pycnometer, g	135 .72	· — —	·	
W _a	Wt. Pycnometer + Wetting Agent, g	387 · <u>09</u>	· <u> </u>	·	
W _b	Wt. Pycnometer + Wetting Agent + Soil, g	411 .4.7	· -	·	
	Temperature, T _x at W _b , °C	25.4 C.			
G _w	Specific Gravity of Wetting Agent at T _x	1.00			
G _t	Specific Gravity of Soil at T _x	2.56			
G,	Specific Gravity of Soil at 20°C	2.55	1	1	

$$G_t = \frac{G_{w^*}Y_{w^*}W_o}{W_o + (W_a - W_b)}$$

γ_w = Unit Weight Of Water (g/cc)

 $^*G_x = K_*G_t$

K values found in ASTM D854-58, Table 1

*NOTE G_s = G_t When Test Run at 20 °c

Average Specific Gravity At 20°c <u>Z</u>. <u>5</u> 5

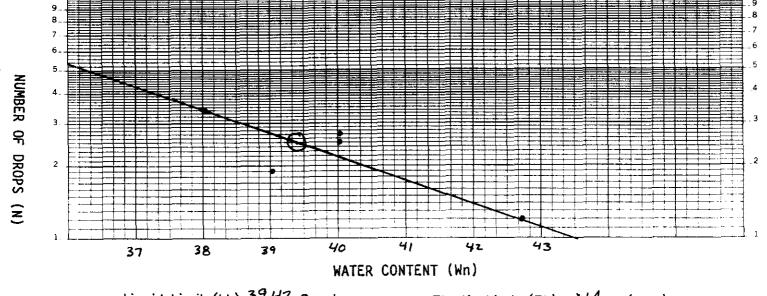
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Checked By HLBenny

Date 3-7-90

PLASTIC INDEX SOILS DATA SHEET

FEASILG HADEX SO	ILD DAIN SHEET
Sample No. <u>0 - 647</u>	Pageof_Z
Test Operator HiBenny	Date 4/16/20
<u> </u>	Calibration Date 8-16-90



Liquid Limit (LL) 39,42 Graph

Liquid Limit (LL) NA One Point

Moisture (LL) 39.42 %

Plastic Limit (PL) <u>NA</u> (Avg.)

Moisture (PL) <u>NA</u>% <u>NA</u>%

Plastic Index (PI)* <u>NA</u>

*P! = LL - PL

Remarks Non-Plastic

ALL DATA ARE ACCURATELY AND COMPLETELY RECORDED. To A 11/90 THE TEST OPERATOR WAS APPROPIATELY TRAINED AND ULITIZED CALIBRATED TEST INSTRUMENTS. APPROVED TEST PROCEDURES WERE FOLLOWED TO PRODUCE THIS DATA.

SOIL MOISTURE DATA SHEET

PROCEDURE NO. ETAL - 18 REV. NO. DE CALIBRATION DUE DATE 8/16/90

Blows	SAMPLE NO.	WET WT. + CAN	DRY WT. + CAN	CAN WT.	WET WT. SOIL	DRY WT. SOIL	% WATER
34	0-047-1	38.68	33. <i>35</i>	19.34	19.34	14.01	38.04
12	-2	35.65	30. 98	19.71	15.94	11-17	42.70
19	-3	34.31	30.07	19.22	15.09	10.85	39.08
2,5	-4	36.72	31.62	18.89	17.83	12.73	40.06
27	~5	36.85	31.98	19.82	17.03	12.16	4005
i							

					7 7 7 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
	-						
	102 4 W 50						

DALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND TEST PROCEDURES FOLLOWED TO PRODUCE THE ABOVE DATA

TEST OPERATOR: HeBenny

DATE

Westinghouse Hanford Company
Company Contact:
Sample Collected b
Sample Locations:
Ice Chest No.:
Remarks: CERCA
Montrok

CHAIN OF CUSTODY

CHAIN OF CUSTOD!	į
Company Contact: J.W. LINDREPG Telephone:	6-5005
Sample Collected by: State L Auberson GAT Date: 01790-011	390 Time: PA
Sample Locations: MW-9, HORN PAPIDS LANDFILL	
B	HC-N-306,
Ice Chest No.: NA Field Logbook	·
Remarks: CERCIA, 1100-EM-1 OPERABLE UNITE PROMODERTE	£
MONITORING WELLS	
Method of Shipment: HAND CARRY	
Sample Identification	d.
MW-9-7 DOUBLE- LINES PLASTIC BAG	
MW-9-8 " "	
MW-9-9 11 h	
MW-7-7	
CHAIN OF POSSESSION	
Relinquished by: Received by:	Date/Time:
Ctobles Karel Americalist all Millians	1-22-90 3:48PM
Redeived by:	Date/Time:
Tet Lindles JWLindberg RG Slepand RG Alexander	1-23-90/0605
Relinquished by:	Date/Time:
•	•
Relinquished by: Received by:	Date/Time:

W	Westingh Hanford	ouse Company
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		SAMPLE ANALYSIS F	REQUEST	
PART I: FIE	LD SECTION			
Collector: _	Steve anders Golder Ass	<u>on</u> Date Sampl	ed: <u>Van 5 - 19, 1990</u> 11me:	114 hours
Company (Contact UWLine	berg	Telephone (২০১) 3-76	- 5005
SAMPLE NUMBER	NUMBER & TO OF SAMPLE CONTAINERS	SAMPLE		STED
MW-9-4	double-lined plas	tic bas Soil	Particle Size	
MW-9-5	•	1 501	Partide Size	
mw-9-6	4 split spoon	liners Zoil	Permoability Particles	ize Attende
MW-9-7	double-lined p	lastic bag 50:	Particlesize, AH	erbergh.
MW9-8		" Soil	Particle Size	
MW-9-9	11 11	" 4 50:1	Particle Size	
Fleid Infor	mation ••			
Special Ha	ndiing and/or Sta	orage Do not	allow mw-9-6 to	freeza
PART II:	LABORATORY SECTI	ON		
Received b	• •		•D	ate

RADIATION RELEASE	RADIATION RELEASE
Released By Operational Health Physics	Bidg. WELL#7-5 Date D'-06-90 Dependent Health Physics
Remarks	Remarks < D F 0 - 8 mout
54-3000-022 (09/88)	54-3000-122 (09/8"
RADIATION RELEASE	RADIATION RELEASE
Released By MW-9-6 Pate 1-8-90 Operational Health Physics	Bidg. MW-9 - 7 Date 1-18-90 Released By Market Mark
Suff Soup (54-3000-022 (09/88)	Remarks Sauy (19/88)
	No.
RADIATION. ASE Bidg. MU-9-8 Date 1-18-90 Released By MM and and and and and and and and and and	RADIATION RELEASE Bidg. MW-9 - 9 Date 1-18-90
Operational Health Physics Remarks	Released By Operational Health Physics
\$4-3000-022 (09/88)	Memarks
ૻ૽ૺ ૡ૽૾	3

TEST REQUEST FORM

Sample/Specimen No	.0-048	Cost Code/Work Order No. ED 332
Requested By: Org	. <u>80</u> 232	Person J. LIND BERG Date 2-1-90
Test Requested	No. of Samples	Test Lab Information (Instruction Used)
SIEVE ANALYSIS	1	ETAL-07
HOROMETER	1	etal-07 (IF Req)
A/A	NIA	N/A
NIF	NA	N/A
	•	
Remarks FIEW SAM	1 PUE	Received By: REALEVANDER Date 1-23-90
		Approved By: RGALEXANOER Date 24-10

			SIEVE A	NAL	YSIS	DAT	A SHI	EET				
	Sampl	e ID <u></u>	-048				Page		of _	/		
	Tes	sted By_/	R.G. Alex	AN	DER	I	ate	2-1-9	0			
	Dr	onedureo	ETAL-07	D	_ 1	_		_		40		
		ocedure_		Ker	v <u> </u>	I	Date Is	ssued_/	1-15-	99		
		EQUIPME	ENT ITEM	CAL	IBRAT	n noi	10.	DATE D	UE			
		Balance	ENT ITEM		330	4		3-25	90			
		Thermome	eter A		000	A S	 .	2-6-	4			
Sampl	e Desc	ription_	SANO				Si	leve Tir	ne/	<u>O_(n</u>	ain))
	reduced	by 🔯	splitting] qua	rtering		stockp	lle			
222	(B)	30m rmm 4/	/A AFTER		(A)	1/4	B-A		//A ~	7000		
BEF	ORE TE	SST WT.22	APTER	TES	ST WT	. /4/1	В	100 = 12	%	TOSS		
Sleve ID	Sleve	Sample	Cumulativ	e Wt.	% Ret	ained	Cumu	ilative %	Cumul	ative %	7.	Pass
Number	Size	Weight	Retained (g)			Ret	ained	Pa	99		
N/A	ı					<u> </u>		1	1			
					•			1				**-
							ļ	 				
			 					 				
								1			_	
								ļ	-		4	 .
								<u> </u>				
	V	4	1		<u> </u>			Ţ	<u> </u>		<u> </u>	
<u> </u>	#10	153.29	Ø		Ø		(Ø		>	10	σ
	#40		2.16		10	4		4	98	8.6 98.6		5,6
	#60		25.98		16.	9	16	. 9	83.1		83	-1
	#100		75.16		49.	49.0		49.0		٥	51.0	
+	#200		121.7	7	79,	4	79	.4	20.	ط	20	16
	Finess h	fodules (FN	r)	(Section (
MATERL	ALS FIN	VER THAN	NO. 200	SIEV	E BY	WASE	IING					
C=Percent	age of l	Material Pa	ssing a 200	Sleve	20.6	_%	· · · · · ·	Remarl	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			
D=Origina	l Dry We	ight of Sar	nple		153.29	r F	-		L FIE	16 GR	ADX	<i>NG</i>
E=Dry Wel			r Washing/	Sieve	121.77	Š	-	SAN				
	C = <	(D-E)/D> X	100									
			URATELY							E TES	T	
OP Ch	EKATU) ecked	r was tr by <u>#U</u>	ained an: B <i>enu-</i> j	υ US	SED C.	alibr.	ATED I	NSTRUI Date				
									-6400-20			

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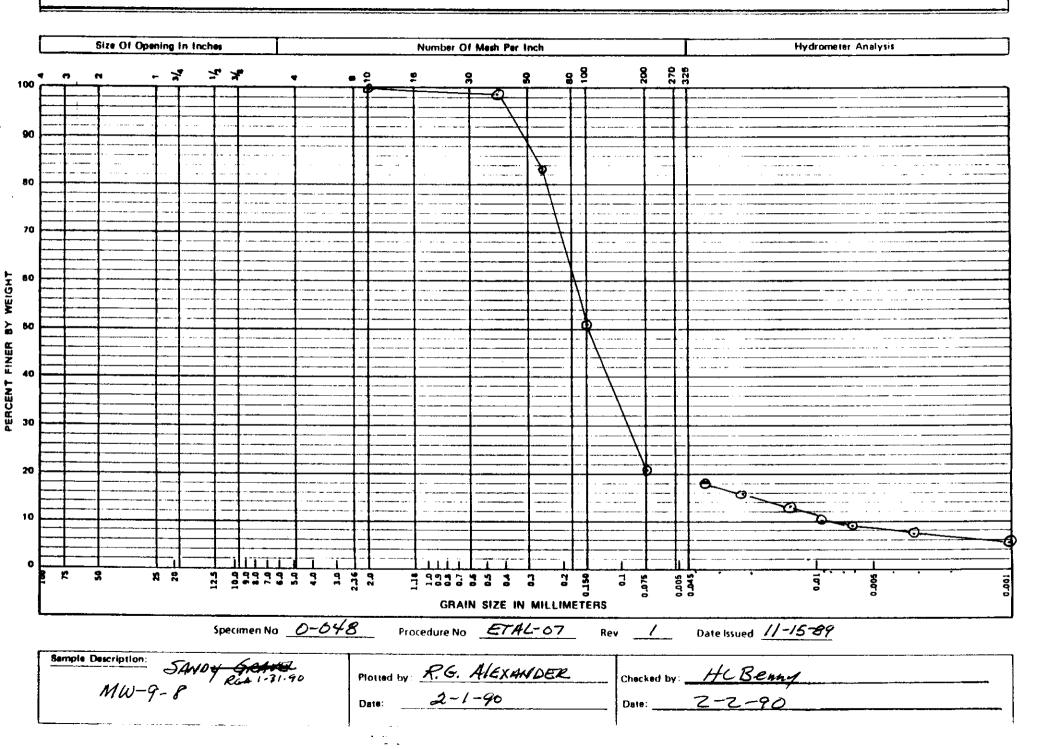
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GRAIN SIZE ANALYSIS PLOT



SOIL MOISTURE DATA SHEET

PROCEDURE NO. ETAK-14 REV. NO.

THERMOMETER NO. 0006 CALIBRATION DUE DATE 2-6-90

SAMPLE NO.	WET WT. + CAN	DRY WT. + CAN	CAN WI.	WET WT. SOIL	DRY WT. SOIL	% WATER
6-048	5541.66	4457.79	835.76	4705.90	3622-03	29.92
					,	
						<u></u>
,						
			; ;			

ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND TEST PROCEDURES FOLLOWED TO PRODUCE THE ABOVE DATA

TEST OPERATOR: R.G ALEXANDER

DATE 2-1-90

		;	HYDROMET	TER ANA	LYSIS DATA SHE	T		
Sample II	o	-048				Page <u>l</u> of <u>(</u>	_	
		Tested By _ R (Date3			·
			SENT ITEM		NO.	CALIBRATION DUE DATE		
		<u>Hydrometer</u> Balance			060 3304	3-25-90		
		Thermomete	r/Thermocouple		5602	2-9-91		
•	-	f Sample <i>c</i> Sieve <i>/</i>		- _(%)	HYGROSCO Wt. Container + A	OPIC MOISTURE C		
Hygros	copic Corre	ection Factor	N/A	-	Wt. Container + C			
	. <u>M</u>	VEIGHT OF SAM	PLE		Wt. Container	N/P	(g	i)
Wt. Cor	ntainer +	śoil	N/A	_(g)	Water Content	N/Þ	(%	%)
Wt. Cor Wt. Soi			N/A 70,33			REMARKS		
	<u>CON</u>	APOSITE CORRE	CTION		TUBEC			
		<u>5</u> _at					<u></u>	
2nd Re	ading	N/A at	N/A	_°c				
~ .]								
Date	Clock time	Elapsed time (min)	Hydrom readir	eter ng	Hydrometer with composite correction	Temp. n (°C)	Soil in suspension (%)	Particle diameter (mm)
3-20	0952	2.0	18		/3	23,8	18.7	0.034
3-20	0955	5.0	16	·i	11	23.9	15.8	0,022
3.20	1005	15.0	14		99	24.0	12.9	0.013
3-20	1020	30.0	12		7	23.8	10.1	0,009
3-20	1050	60.0			4	23.7	8.6	0.006
3-20	1400	250.00	10		5	24.5	7.2	0.003
3-21	0950	1,440.0	9		4	23.2	5.7	0,001
Formulas					e diameter and hygrosco			
	TRAINED A	IND UTILIZED CALIB TO PRODUCE THE	RATED TEST INST	TRUMENTS A	RECORDED. THE TEST OP S INDICATED ABOVE. APP	ROVED TEST PROCED	PRIATELY OURES WERE	
	Checked By	John 1	Congan		Date_ <u>3- 2</u>	<u> 3-70 </u>	<u></u>	•

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Specimen/Sample No.	-048	Page <u>1</u> of <u>1</u>		
Test Operator R.G. Alexa	3-6-90			
EQUIPMENTITEM	<u>.NO.</u>	DATE DUE		
Balance	3304	3-25-90		
Oven Thermometer	0007	8-16-90		
Thermometer	0002	2-9-91		
Pycnometer	2554	N/A		

Wetting Agent "Q" WATER

	DETERMINATION NO.	1	2	3
	Drying Container No.	N/A	N/A	N/N
	Wt. Container + Oven Dry Soil, ± 0.01g	N/A	·	
	Wt. Container, ± 0.01g	N/A :	· -	` ·
W _o	Wt. Oven Dry Soil, g	40.00	·	·
	Pycnometer No.	2554		
	Wt. Pycnometer, g	135 .72	·	·
Wa	Wt. Pycnometer + Wetting Agent, g	387 -10	·	· _ _
W _b	Wt. Pycnometer + Wetting Agent + Soil, g	411 .80	·	·
	Temperature, T _x at W _b , °C	25.7 c .		
Gw	Specific Gravity of Wetting Agent at T _x	1.00		
G,	Specific Gravity of Soil at T _x	261		
G,	Specific Gravity of Soil at 20°C	2.61	1	1

$$G_t = \frac{G_{w^*} Y_{w^*} W_o}{W_o + (W_a - W_b)}$$

yw = Unit Weight Of Water (g/cc)

*G, = K.G,

K values found in ASTM D854-58, Table 1

*NOTE G_s = G_t When Test Run at 20 °c

Average Specific Gravity At 20°c 2.61

ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND UTILIZED CALIBRATED TEST INSTRUMENTS AS INDICATED ABOVE. APPROVED TEST PROCEDURES WERE FOLLOWED TO PRODUCE THE ABOVE DATA.

Checked By HL Benny

Date 3-7-90

W	Westingh Hanford	ouse Company
	110,11014	001119

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	CHAIN OF	CUSTODY	
Company Contact: 5.W.	LINDBERG	Telephone:	6-5005
Sample Collected by: Stelle L	Ausepson	SAT Date: 01710- 01	1890 Time: 14
Sample Locations: MW-9	HORN RAPI	DS LANDFILL	
Ice Chest No.: N/A		Fleld Logboo	WHC-N-306, k Page No.: <u>p.34-3</u> 5
Remarks: CERCLA, 1100-EM	-1 OPERABLE	UNITE COUNDANT	FR
MONITORILE WELL	<u> </u>		
Method of Shipment: HAND	CARRY	· · · · · · · · · · · · · · · · · · ·	
	Sample Ide	entification	5
MW-9-7 DOUBLE- 41	JED PLASTIC	78AG	
MW-9-8 "	u	u	
MW-9-9 "	<u> </u>	и	
	······································		
			<u> </u>
CHAIN OF POSSESSION			
Relinquished by:	Received by:	A	Date/Time:
turbliggon Specie L Auren	my Wing	llerg UW Lindberg	1-22-90 3:48PM
Relinquished by	Received by:		Date/Time:
Julien JWLindberg	RG fless	nd-RGALEXANDER	1-23-90/0605
Relinquished by:	Received by:		Date/Time:
Relinquished by:	Received by:	Mary de la contraction de la c	Date/Time:
			

W	Westingh Hanford	ouse Com	pany
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SAMPLE ANALYSIS REQUEST

	· ·		nd: <u>Van 5-19, 1990</u> Time: 1)4 hour
Company C	ontact <u>UWLindberg</u>		Telephone (20) \$76-5005
SAMPLE NUMBER	NUMBER & TYPE OF SAMPLE CONTAINERS	TYPE OF SAMPLE	ANALYSIS REQUESTED
1W-9-4	double-lined plastic bag	s 50,1	Partide Size
mw-9-5	n a n n	Soil	Partide Size
MW-9_10	4 split spoon liners	abil	Particle Size Permeability, Particle size, Atterb
NW-9-7	double-lined plastic ba		Particlesize Atterbergs.
MW9-8		Soil	Particle Size
NW-9-4	11 11 11 11	50:1	Particle Size
ield Inform	nation **		
Special Har	adiing and/or Storage D	o not a	allow mw-9-6 to freeze
	ABORATORY SECTION		
		Title	0ate
	quired		

RADIATION RELEASE	RADIATION RELEASE
Bldg 124 #9 -4 Date 1-5-89	Bldg WELL#7-5 Dage 01-06-90
Released By Operational Health Physics	Operational Health Physics
Remarks	Remarks < A for Sandif
54-3000-022 (09/88)	54-3000-122 (09/85)
RADIATION RELEASE	RADIATION RELEASE
Released By MW-9-6 Date 1-8-90 Department on the Physics	Released By Market Belland
Sult Samp (54-3000-022 (09/88)	Remarks
0	
RADIATION ASE Bldg MW-9-8 Date 1-18-90	RADIATION RELEASE Bidg. MW9-9 Date 1-18-90
Operational Health Physics Remarks	Released By Apperational Health Physics
Jample 54-3000-022 (09/88)	Sample 54-3000-022 (09/88)
N	\

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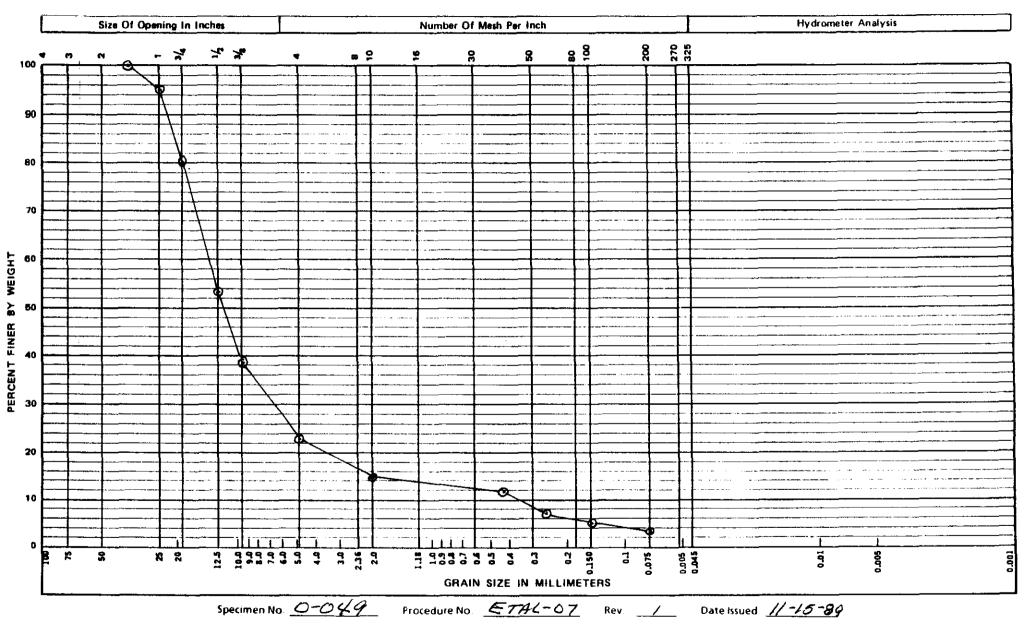
TEST REQUEST FORM

Sample/Specimen No. 0-049		Cost Code/Work Order No. ED337
Requested By: Org. 80232		Person J. LINDBERG Date Z-1-90
Test Requested	No. of Samples	Test Lab Information (Instruction Used)
SIEVE AMALYSIS		ETAL-01
Hyprometer		ETAL-07 (TERED)
N/A	N/A	N/A
W/A	N/A	N/A
	•	
Remarks FIED SAM	p UE	Received By: RG ALEXANDER Date 1-23-9
		Approved By: R.G. ALEXANDER Date 1-1-97

			·····	· · · · · · · · · · · · · · · · · · ·			
			SIEVE ANAL	YSIS DAT.			
	Sampl	e ID <i>O</i> -	049		Page/	of/_	
	Te	sted By/	R.G. ALEXAN	IDER I	ate Z-/-9c	<u> </u>	
	D-	aaaduuma d	EAL-07 Re			.,	
	PT	ocedure_z	Re	V	Date Issued	1/-15-89	
		EQUIPME	NT ITEM CAL	BRATION N	O. DATE D	UE	
	;	Balance		3304	3-25	90	
	;	Thermome N/		0006 N/A	2-6 N(
	<u> </u>						
Sampl	le Desc	ription	Smoy GR:	WEC.	- Sieve Tir	ne <u>10</u> (r	nin)
	reduced	by 💢	splitting [quartering	stockp	lle	
BEF	(B) ORE TI	EST WT.	AFTER TE	ST WT. NA	$\frac{B-A}{B}X \ 100 = D$	√A % Loss	
Sieve ID	Sieve	Sample	Cumulative Wt.	% Retained	Cumulative %	Cumulative 2	7 Pass
Number	Size	Weight	Retained (g)		Retnined	Pagg	!
N/A	2	4110.75	Ø	Ø	Ø	100	100
	1/2		Ø	Ø	Ø	100	100
_	1		202.58	4.9	4.9	95.1	95.1
	3/4		818.44	19.9	19.9	80.1	80.1
	1/2		1907.12	46.4	46.4	53.6	53.4
	3/8		2527.88	41.5	41.5	3 <i>8.</i> S	38. <i>5</i>
	#4	1	3176.84	77.3	77.3	22.7	22.1
	#10	4110.25	3524.93	85.8	85.8	14.2	14.2
	#40	151.63	24.07	15.9	15.9	84.1	11.9
	#60		75.48	49.8	49.8	50.2	7. <i>t</i>
	#100		98.02	64.6	64.6	35,4	5,0
4	#200	1	117.55	77.5	77.5	22.5	3,2
	Finess l	Modules (FM	r) _ N/A (36-83, Section		
MATERI	ALS FD	VER THAN	NO. 200 SIE	VE BY WASE	IING		
	·		ssing a 200 Siev		Remark		
D=Origina	Dry We	eight of San	nple	151,63m		CL FIELD	ome-
E=Dry We			r Washing/Sleve	117.55m	JAM		
	C = <	(D-E)/D> X	100				
			URATELY AND				7
	ERATO		ained and ui	SED CALIBR.		MENTS	

A-8400-204(2-87)

GRAIN SIZE ANALYSIS PLOT



Sample Description:
SANDY GRAVEL
Plotted by: R-6 Alexander

NW-9-9

Date: 2-1-90

Date: 2-8-90

SOIL MOISTURE DATA SHEET

PROCEDURE NO. <u>ETAL-14</u> REV. NO. <u>S</u>

THERMOMETER NO. <u>0006</u> CALIBRATION DUE DATE <u>2-6-90</u>

SAMPLE NO.	WET WT. + CAN	DRY WT. + CAN	CAN WT.	WET WT. SOIL	DRY WT. SOIL	% WATER
0-049	5505.41	4966.81	856.56	4648,85	410.25	13.10
						ļ
	<u> </u>					
/						

ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND TEST PROCEDURES FOLLOWED TO PRODUCE THE ABOVE DATA

TEST OPERATOR:

R.G ALEXANDER

DATE 2-1-90

Westinghouse Hanford Company				
Tightora company		CHAIN OF	USTODY	
Company Contact:	J.W. L.	UDBERG	Telephon	6-5005
Sample Collected by:	STEWEL A	MERSON	At)Date: 01790-	011890 Time: 10/1
Sample Locations:				
ce Chest No.:	N/A		Field I ook	WHC -N 306,
Remarks: CERCIA, 1				
				
Method of Shipment:	HAND C	ARRY		
		Sample Ide	tification	
MW-9-7 De	mble - Uned	PLASTIC	3 <u>46-</u>	
MW-9-8	41	ц	u	
MW-9-9	., ,,	<u>k</u>	<u>и</u>	
		-		

Relinquished by:

Received by:

W	Westingh Hanford	ouse Company
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SAMPLE ANALYSIS REQUEST

			d: <u>Van 5-19, 190</u> Time: <u>AVA</u> ho	
SAMPLE NUMBER	NUMBER & TYPE OF SAMPLE CONTAINERS	TYPE OF SAMPLE	ANALYSIS REQUESTED	
10-9-4	double-lined plastic bags	50,1	Particle Size	
nw-9-5	16 41 15 41	Soil	ParticleSize	
7W-9-6	· · · · · · · · · · · · · · · · · · ·	abil	Permandility Particle size Atter	6
NW-9-7	double-lined plastic bas	50:1	Particlesize Attenberg	
MW-9-8		50,	Particle Size	
nu)-9-4	et k ti sj	Soil	Particle Size	
ield inform	nation **			
	<u> </u>	not a	Now mw-9-6 to freeza	
	ABORATORY SECTION	T 21		
acsinag p	Y		Date	

RADIATION RELEASE	RADIATION RELEASE
Bldg. 113el #9-4 Date 1-5-89	Bidg. WELL#7-6 Dage DI-06-90
Operational Health Physics	Operational Health Physics
Remarks	Remarks < A P O Son Dut
54-3000-022 (09/88)	54-3000- 122 (09/8 ft,
RADIATION RELEASE	RADIATION RELEASE
Released By MW-9-6 Date 1-8-90 Sperational Health Physics	Bidg. MW-9 - 7 Date 1-18-90 Released By Market Aug.
Self Souple 54-3000-022 (09/88)	Remarks Sauge 54-3000-022 (09/88)
RADIATION ASE Sidg	RADIATION RELEASE Bidg. MU-9-9 Date 1-18-90
Sample 54-3000-022 (09/88)	Remarks Sample 54-3000-022 (09:88)

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